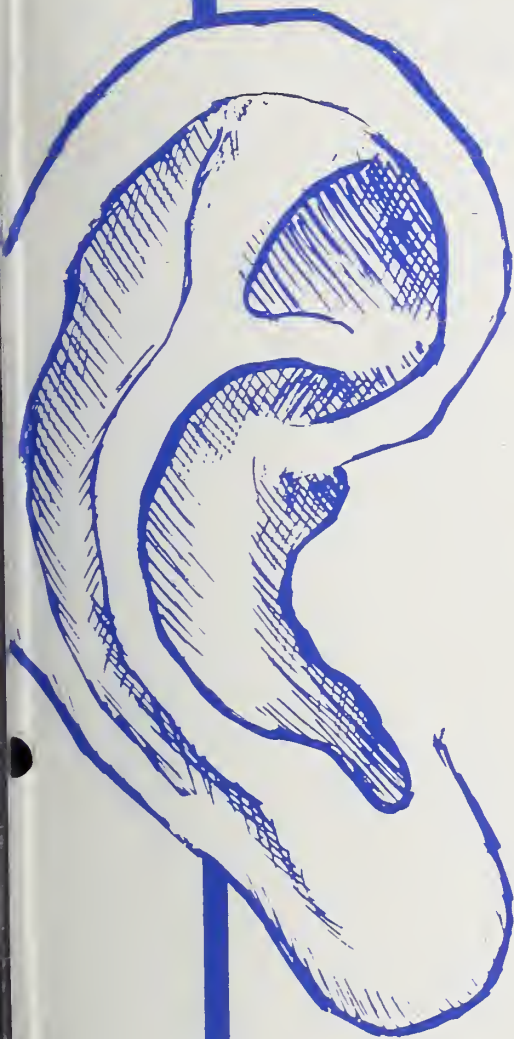


NBSIR 74-558  
(see p. 24)

IB 11-48



**HEARING AID  
PERFORMANCE MEASUREMENT DATA  
AND**

**HEARING AID  
SELECTION PROCEDURES**

**CONTRACT YEAR 1975**

**VETERANS ADMINISTRATION WASHINGTON, D.C. 20420**





# HEARING AID PERFORMANCE MEASUREMENT DATA AND HEARING AID SELECTION PROCEDURES

Contract Year 1975

## PROSTHETIC AND SENSORY AIDS

Department of Medicine and Surgery

VA Central Office - 810 Vermont Avenue, N.W.  
Washington, D.C. 20420

## SOUND SECTION

Institute for Basic Standards

National Bureau of Standards  
Washington, D.C. 20234

## AUDITORY RESEARCH LABORATORY

VA Hospital - 50 Irving Street, N.W.  
Washington, D.C. 20422

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## SECTION I

### INTRODUCTION

By

G. DONALD CAUSEY, Ph.D.  
Auditory Research Laboratory  
Veterans Administration Hospital  
Washington, D. C..

The Veterans Administration's program for measuring and evaluating the performance characteristics of hearing aids was developed as a means of selecting a manageable group of instruments from among the wide variety of models available on the consumer market.

Each year, all interested manufacturers (of record) or their agents are sent a copy of the bid format and invited to participate in our program. For the 1975 Contract Year, 20 manufacturers participated by offering samples. To ensure that the total number of samples would be compatible with laboratory facilities, each manufacturer was limited to the submission of a total of seven models. In addition, a limited number of special models were authorized for submission or were solicited separately. It is a requirement that the models submitted be selected from among those that are currently available as standard items in the manufacturer's production line. VA representatives made a random selection of three sample aids of each model entered in the program from the participating manufacturers' stock. These aids are tested for VA by the Sound Section of the Institute of Basic Standards at the National Bureau of Standards, and the Biocommunications Laboratory, University of Maryland, which subject the aids to a number of specific predetermined acoustic and electronic measurements. Except for those evaluated for meeting a special clinical need, aids are placed in one or more of four power categories: mild, moderate, strong, or extra strong. Aids with special characteristics were evaluated with others having those same characteristics. A total of 123 models were received for this year's program. The voluminous raw test data is turned over to VA's Auditory Research Laboratory for evaluation and conversion into a performance score or "Index of Characteristics". The Index of Characteristics is derived by applying to the test results weighting factors which have been reviewed and approved by a VA advisory group of consulting audiologists and physicists. Selection of hearing aids for contract is made from among those qualified hearing aid models which:

- (a) have Index of Characteristics scores which are markedly better than the other hearing aids in their category, or
- (b) may be deemed clinically necessary to provide adequate hearing rehabilitation for deafened veterans without reference to their measurement results or cost per point of quality, or
- (c) have the lowest cost per point of quality as obtained by dividing the determined cost to the VA by the Index of Characteristics score.

In order to present data which are meaningful and to reduce confusion, we have indicated in Section II those hearing aids which scored in the top 25% of their respective categories or which received a VA contract

because they possess particular characteristics needed for special clinical problems. These aids are labeled with an asterisk. This is not to say that the remaining instruments are not of value. It simply means that they did not score as well on our tests and that we must limit the number of aids on contract because of administrative problems in stocking and handling large quantities of instruments.

The selected hearing aids are purchased in quantity lots directly from the manufacturer and stocked in the VA Supply Depot, Hines, Illinois. The instruments are then distributed to the various VA and contract audiology clinics in accordance with predetermined stock level requirements.

Each hard-of-hearing veteran reporting to these clinics has an otological examination, audiological examination, and receives a trial with 3-5 of these contract models which are known to possess characteristics which might compensate for his hearing deficiency. Once it is determined that a particular hearing aid is most suitable for a veteran's hearing defect, he is issued that specific instrument.

When a veteran is issued a hearing aid, he is normally entitled to be furnished hearing aid repair services and sufficient batteries to operate the instrument. Eligible veterans are provided spare hearing aids to utilize when their regular hearing aid is sent in for repairs, so that they will not be deprived of aided hearing. Ordinarily, the veteran who receives an initial hearing aid may return after six months for a second instrument. The first one issued then becomes his spare aid. Studies have shown that the majority of veterans retain their hearing aids an average of eight years before requesting a replacement. Veterans are furnished replacement hearing aids at such times as they are required.

Individuals with hearing problems should take into account the following factors:

1. There is no "best" hearing aid for all individuals. Aids that perform well for one person may not perform well for someone else. Our general advice to a person with a hearing disability is to seek professional guidance in obtaining the aid best suited to his particular problem,

2. VA does not test all hearing aids - only those submitted by manufacturers who want to participate in the VA program. Of the more than 500 hearing aid models available in the United States, VA tests each year approximately 20%. The information contained in this document should not be used as an absolute buying guide and persons not



finding the aid they now wear listed among those VA buys should not automatically conclude the device they have is inferior.

3. Information contained in this document applies for Contract Year 1975 only. New and improved hearing aids are developed each year and as a result the information provided by VA varies from year to year.

4. Primarily, VA provides hearing aids only to veterans whose hearing disability is the result of military service. For further information these veterans should contact their nearest VA office or hospital. Other veterans and all non-veterans seeking added information are advised to consult specialists in their local communities.

## SECTION II

CHART LISTING MANUFACTURERS PARTICIPATING IN THE VA HEARING AID PERFORMANCE MEASUREMENT PROGRAM, THE HEARING AID **MODELS** SUBMITTED, TYPES OF AIDS, POWER CATEGORIES, AND THOSE HEARING AID MODELS EITHER SELECTED FOR CONTRACT YEAR 1975 OR THOSE MODELS WHICH HAVE SCORED IN THE TOP 25% OF THEIR POWER CATEGORY.

CONTRACT YEAR 1975

<u>MANUFACTURER</u>	<u>MODEL</u>	<u>TYPE+</u>	<u>CATEGORY</u>
ACOUSTICON SYSTEMS CORPORATION	A-465 SSR*	IE	Very Mild
	A-650C	OE	Compression
SHELTER ROCK LANE	A-690E ATC	OE	High Frequency Emphasis
DANBURY, CONN.	A-690 ET	OE	Mild to Moderate
06810	A-770 Gold	OB	Strong
	A-1001 ATC	EG	Mild
	A-1001 CROS	EG	CROS
AUDIOTONE	A-20 P-2*	OE	Mild to Moderate
2422 W. HOLLY	A-20 P-5*	OE	High Frequency Emphasis
PHOENIX, ARIZ.	A-23	OE	Moderate
85009	A-24	OE	Mild to Moderate
	A-24 P-5	OE	High Frequency Emphasis
	A-25*	OE	Mild
	A-26 (Spec.)	OE	Compression, High Frequency Emphasis
AUDIVOX, INC.	101-CBD	OE	Mild
55 CHAPEL STREET	101-CDGD*	OE	High Frequency Emphasis
NEWTON, MASS.	111 SRD*	EG	Moderate
02158	112-DGDR	EG	High Frequency Emphasis
	118-AM	OB	Strong
	120-BRD	OE	Mild, Directional
	121-PB	OE	Directional
DAHLBERG	HF-1250	EG	Compression
ELECTRONICS, INC.	HG-1250*	EG	BICROS
P.O. BOX 549	HH-1250	EG	CROS
MINNEAPOLIS, MINN.	HT-1233	OE	Compression
55440	JR-1260	OE	Compression, Directional
	LP-1247	OE	Mild
DANAVOX, INC.	647-SMP	OB	Very Strong
1905 3RD AVE. S.	685-S	OE	High Frequency Emphasis
MINNEAPOLIS, MINN.	685-U	OE	High Frequency Emphasis
55404	695-PPX	OE	Moderate
	727-PPX	OB	Strong
	735-C	OE	Compression
FIDELITY	F-1	OE	High Frequency Emphasis
ELECTRONICS, LTD.	F-38 HFE	OE	High Frequency Emphasis, Compression
5245 W. DIVERSEY	F-39	OE	High Frequency Emphasis
AVENUE	F-39 LFE (Spec.)	OE	Mild
CHICAGO, ILL.	F-175	OE	Mild
60639	F-364	OB	Compression
	F-499	EG	Mild to Moderate

CONTRACT YEAR 1975

<u>MANUFACTURER</u>	<u>MODEL</u>	<u>TYPE+</u>	<u>CATEGORY</u>
LEHR INSTRUMENT CORPORATION	Omniton 111F*	OB	Moderate to Strong
P.O. BOX 445	Omniton 112 SC	OB	Very Strong
1666 NEW YORK AVE.	Optica 6*	EG	Mild to Moderate
HUNTINGTON STATION	Star 6H	OE	Mild to Moderate
NEW YORK	Star 6F*	OE	Moderate
11746	Star 6 ST*	OE	Mild to Moderate
MAICO HEARING INSTRUMENTS	CQ*	OE	Mild, Directional
7375 BUSH LAKE RD.	DA	OE	High Frequency Emphasis, Directional
MINNEAPOLIS, MINN.	DB	OE	High Frequency Emphasis, Directional
55435			
NORTH AMERICAN PHILIPS CO., INC.	HP8123*	OB	Moderate
HEARING AID DIV.	HP8126	OB	Very Strong
100 E. 42ND ST.	HP8273*	OE	Moderate
NEW YORK, N.Y.	HP8274*	OE	Compression
10017	HP8278	OE	Mild
	KL6730*	OE	Moderate to Strong
	KL6732	OE	Moderate
	6731 VTC	OE	Moderate
OTARION ELECTRONICS, INC.	Compette	OE	Compression
P.O. BOX 711	Listenette	IE	Very Mild
OSSINING, N.Y.	Tonette	OE	Mild
10562	RX-880 Bone	EG	CROS
	CROS*		
OTICON CORP.	375 PPX*	OB	Strong
999 STONE ST.	375 PPZ	OB	Moderate
P.O. BOX 1511	380 SI*	OB	Moderate
UNION, N.J.	565 SZ*	OE	Mild to Moderate
07083	565 SZ LDC*	OE	Compression
	568 S	OE	Mild
	850 Super CROS*	EG	CROS
QUALITONE, DIV. OF SEEBURG CORP.	CS	OE	Compression
4931 W. 35TH ST.	SNEC*	EG	CROS
MINNEAPOLIS, MINN.	SSD	OE	Moderate, Directional
54416	SWH*	OE	Mild to Moderate
	TSNEB	EG	BICROS
	TSP*	OE	Moderate to Strong
	TSPN	EG	Moderate
	TSPNB*	EG	Moderate BICROS

CONTRACT YEAR 1975

<u>MANUFACTURER</u>	<u>MODEL</u>	<u>TYPE+</u>	<u>CATEGORY</u>
RADIOEAR CORP.	980	OB	Strong
375 VALLEY BROOK RD.	980 P	OB	Very Strong
CANONSBURG, PA.	1030	OE	Compression, Directional
15317	1040	EG	Moderate
RCI, INC.	M-Soft Sound	OE	Mild
308 SOUTH WALKER	P-Soft Sound	OE	High Frequency Emphasis, Directional
WAYZATA, MINN.	Directional		
55391	Wide Band	OE	Moderate
	M-Wide Band	OE	Moderate, Directional
	Directional		
	Super Power	OE	Moderate
SIEMENS MEDICAL OF	Auriculina H360	OE	High Frequency Emphasis
AMERICA, INC.	20T-MP	OE	Mild
186 WOOD AVE., SOUTH	22E-MP-AGC	OE	Compression
ISELIN, N.J.	24SL	OE	Moderate
08830	26 E-HT-CPC	OE	High Frequency Emphasis
	28 E-MP-HF	OE	Mild
	34D-SL-PC*	OE	Directional
SONOTONE CORP.	35AX*	EG	BICROS
SAWMILL RIVER RD.	35AZ*	EG	CROS
ELMSFORD, N.Y.	36-21	OE	Mild
10523	40-6	EG	Moderate
	77-D	OE	Directional
	77-S*	OE	Moderate
	670 XV*	OB	Very Strong
TELEX COMMUNICATIONS	25	IE	Mild to Moderate
DIVISION	33-D	OE	Directional
9600 ALDRICH AVE.	70*	OB	Strong
SOUTH	331H*	OE	High Frequency Emphasis
MINNEAPOLIS, MINN.	334*	OE	Mild
55420			
VICON INSTRUMENT	OE 123	OE	Mild to Moderate
COMPANY	OE 124	OE	Mild to Moderate
828 WOOTEN RD.	OE 132	OE	High Frequency Emphasis
P.O. BOX 1676	OE 139*	OE	Mild
COLORADO SPRINGS,	OE 150	OE	Moderate
COLORADO	OE 159	OE	Compression, Directional
80901	T 141	EG	Moderate

CONTRACT YEAR 1975

<u>MANUFACTURER</u>	<u>MODEL</u>	<u>TYPE+</u>	<u>CATEGORY</u>
WIDEX HEARING AID	45	OB	Very Strong
COMPANY, INC.	52	OE	Moderate to Strong
36-14 ELEVENTH ST.	85	OE	High Frequency Emphasis
LONG ISLAND CITY,	105	OE	Mild to Moderate
NEW YORK	A-1-T	OE	Compression
11106	A-3-T	OE	Compression, Directional
ZENITH HEARING AID	Award*	OB	Mild
SALES CORPORATION	Biphasic	EG	Binaural
6501 W. GRAND AVE.	Carlo CM*	EG	Mild
CHICAGO, ILL.	CROS*	EG	CROS
60635	Pacemaker EP	OE	Moderate
	II*		
	Vocalizer III*	OB	Strong
	Vocalizer 400*	OE	Moderate

Footnotes:

+ Type: (OB) on-the-body; (OE) over-the-ear; (EG) eyeglass; (IE) in-the ear.

\* Hearing aid models selected for Contract Year 1975 and/or the models which have scored in the top 25% of their power category.

### SECTION III

LIST SHOWING AVERAGE GAIN, AVERAGE SATURATION  
SOUND PRESSURE LEVEL, AND PERFORMANCE SCORE  
FOR EACH MODEL MEASURED





VETERANS ADMINISTRATION  
HOSPITAL

50 IRVING STREET NW.  
WASHINGTON, D.C. 20422

October 2, 1974

IN REPLY  
REFER TO: 688/184

TO: Chief Medical Director (112C2)  
Department of Medicine & Surgery  
VA Central Office  
Washington, D.C. 20420

SUBJ: Hearing Aid Testing Program

1. The program of measurement of the acoustic performance of hearing aids carried out for Fiscal Year 1975 by the National Bureau of Standards for the Veterans Administration has been completed. One hundred twenty models were submitted by hearing aid manufacturers for consideration under this program.

2. Tabulation, treatment, and statistical analyses of the data were performed by Dr. Earleen Elkins of the Auditory Research Laboratory. Dr. G. Donald Causey, Chief, Central Audiology and Speech Pathology Program, served as project monitor.

3. The models evaluated are listed below by manufacturer and accompanied by the type of aid, its average gain and saturation sound pressure level (in dB), and the rank it obtained in the category of aids against which it was compared. For hearing aids with standard acoustic characteristics, categorization was made by overall power: Mild, Moderate (Moder.), Strong, and Extra (Ex.) Strong. The remaining aids were categorized by unique characteristics identified as Compression (Comp.), Directional Microphone (Dir.), CROS or BICROS, and maximum amplification above 1000 Hz (Hi-Pass). Models evaluated for special (Spec.) acoustic characteristics are also noted. The small number of in-the-ear, CROS, and BICROS aids precluded a ranking of these categories.

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
Acousticon Systems Corporation					
A-465-SSR	43396	In	36	110	
	52163	Ear			
	52233				
A-650-C	303193	Over	37	108	Comp. 15
	413333	Ear			
	473199	Spec.			

Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
A-690-E-ATC	383381 403143 453378	Over Ear	48	119	Hi-Pass 15
A-690-ET	223191 413474 503114	Over Ear	47	119	Mild 21 Moder. 31
A-770 Gold	463412 463454 463508	On Body	64	134	Strong 8
A-1001-ATC	433111 473288 473302	Eye Glass	44	115	Mild 24
A-1001-CROS	493340 493366 493370	Cros	45	117	

Audiotone Div. of Royal Industries

A-20 P-2	33176 33180 33214	Over Ear	48	121	Mild 6 Moder. 8
A-20 P-5	32986 33017 33031	Over Ear	29	114	Hi-Pass 6
A-23	11709 11731 11737	Over Ear	54	125	Moder. 11
A-24	9680 9687 9716	Over Ear	46	119	Mild 18 Moder. 28
A-24 P-5	9740 9761 9770	Over Ear	22	114	Hi-Pass 1
A-25	1017 1032 1042	Over Ear	44	118	Mild 3
A-26	1038 1041 1055	Over Ear Spec.	41	113	Hi-Pass 10 Dir. 11

Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
Audivox, Inc.					
101-CBD	51369 51376 51395	Over Ear	43	117	Mild 17
101-DGDC	51683 51750 51754	Over Ear	41	115	Hi-Pass 13
111-SRD	45449 45473 48414	Eye Glass	55	128	Moder. 10
112-DGDR	51076 51077 51085	Eye Glass	38	117	Hi-Pass 3
118-AM	49940 49944 51861	On Body	67	135	Strong 15 •
120-BRD	48121 48156 51680	Over Ear	43	114	Mild 25 Dir. 15
121-PB	52709 55707 55724	Over Ear Spec.	53	124	Dir. 18
Dahlberg Electronics, Inc.					
HF-1250	HF40AE HF60AE HF84AD	Eye Glass	55	128	Comp. 10
HH-1250 Cros	HH17AA HH19AA HH21AA	Cros	57	129	Comp. 9
HT-1233	HT13AT HT33AT HT88AT	Over Ear	58	129	Comp. 7
JR-1260	JR74AT JR85AT JR98AT	Over Ear Spec.	36	109	Dir. 14 Comp. 13

Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
LP-1247	LP24AA LP27AA LP37AA	Over Ear	43	116	Mild 13
Danavox, Inc.					
647-SMP	4R159 4R415 5R331	On Body	71	143	Ex. Strong 6
685-S	29609 29739 29964	Over Ear	48	119	Hi-Pass 11
685-U	31719 31805 31834	Over Ear	44	115	Hi-Pass 17
695-PPX	47216 54800 56402	Over Ear	54	126	Moder. 34
727-PPX	12027 14734 14832	On Body	61	132	Strong 9
735-C	10458 10477 10495	Over Ear Spec.	36	107	Comp. 11
Fidelity Electronics, Ltd.					
F-1	5609 5623 5678	Over Ear	50	119	Hi-Pass 19
F-38-HFE	728359 728523 728880	Over Ear	41	115	Hi-Pass 14 Comp. 4
F-39	728069 728100 728369	Over Ear	48	119	Hi-Pass 9
F-39-LFE	728028 728113 728119	Over Ear Spec.	31	104	Mild 30
F-175	13205 13237 13354	Over Ear	46	118	Mild 28

Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
F-364	334581 334771 334884	On Body	64	135	Comp. 8
F-499	0373 0678 0781	Eye Glass	45	118	Mild 26 Moder. 37
Lehr Instruments Corporation					
Omnitone 111F	3305271 3305274 3305285	On Body	57	130	Moder. 21 Strong 5
Omnitone 112SC	3261692 3272694 3273370	On Body	69	139	Strong 10 Ex. Strong 1
Optica 6	3281795 3283144 3300338	Eye Glass	49	121	Mild 4 Moder. 3
Star 6-H	3254658 3254940 3274696	Over Ear	42	119	Mild 9 Moder. 19
Star 6-F	3285336 3285362 3288190	Over Ear	55	128	Moder. 7
Star 6-ST	3307017 3307040 3307051	Over Ear	43	121	Mild 8 Moder. 17
Maico Hearing Instruments					
CQ	93026 93035 93066	Over Ear	43	116	Mild 12 Dir. 3
DA	33950 33979 33995	Over Ear	38	112	Hi-Pass 18 Dir. 17
DB	13242 13261 13274	Over Ear	56	126	Hi-Pass 12 Dir. 12

Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
North American Philips Corporation					
HP-8123	41497 42264 42347	On Body Spec.	53	127	Moder. 2
HP-8126	61183 61972 62338	On Body	67	139	Strong 12 Ex. Strong 2
HP-8273	71959 71964 72000	Over Ear	49	121	Moder. 9
HP-8278	30286 30305 30713	Over Ear	45	117	Mild 14
KL-6730	98099 98185 98247	Over Ear	57	128	Moder. 35 Strong 11
KL-6732	26296 26947 26993	Over Ear	53	126	Moder. 23
6731-VTC	04617 05032 05193	Over Ear	57	128	Moder. 36
Otarion Electronics, Inc.					
Compette	42625C 42683C 42717C	Over Ear	31	102	Comp. 16
Listenette	2881 3272 3349	In Ear	37	113	
RX-800	17377 17430 17414	Cros Bone	Could Not Test		
Tonette	42708 42868 42869	Over Ear	44	115	Mild 29



Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
Oticon Corporation					
375-PPX	133375 133396 133413	On Body	62	132	Strong 4
375-PPZ	119641 120206 120216	On Body	53	124	Moder. 15
380-SI	123074 123075 123567	On Body	54	124	Moder. 29
565-SZ	10990 11006 11013	Over Ear	45	121	Mild 4 Moder. 6
565-SZ LDCWR	15367 15429 15432	Over Ear Spec.	36	109	Comp. 1
568-S	10252 10263 10336	Over Ear	44	117	Mild 20 Dir. 9
850 Super Cros	10033 10037 10040	Cros	45	118	
Qualitone Division of Seeburg Corporation					
CS	40351 40354 40363	Over Ear Spec.	35	108	Comp. 3
SNEC	8112 8136 8141	Cros	45	119	
SSD	36413 36695 36699	Over Ear	45	121	Moder. 27 Dir. 8
SWH	28852 28887 28905	Over Ear	44	118	Mild 7 Moder. 12



Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
TSNEB	7775 7827 7879	Bicros	45	119	
TSP	19217 19221 19227	Over Ear	57	129	Moder. 13 Strong 3
TSPN	4708 4894 4912	Eye Glass	56	127	Moder. 32
Radioear Corporation					
980	545J9 545P2 546N5	On Body	60	134	Strong 6
980-P	545J6 555H4 555H9	On Body	66	138	Strong 14 Ex. Strong 5
1030	5U5 Z97 7J7	Over Ear Spec.	48	120	Dir. 13 Comp. 12
1040	1037 1049 1235	Eye Glass	56	128	Moder. 18
R.C.I., Inc.					
Phonak-M-SS	31672 31679 31692	Over Ear	36	113	Mild 11
Phonak-M-WB-D	31974 31989 31995	Over Ear	50	123	Moder. 26 Dir. 6
Phonak-P-SS-D	42486 42493 42506	Over Ear	37	113	Hi-Pass 2 Dir. 4
Phonak-WB	42207 42220 42228	Over Ear	49	122	Moder. 16

Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
Phonette-SP	42270 42285 42290	Over Ear	51	123	Moder. 14
Siemens Corporation					
Auriculina H-360	601592 601602 601661	Over Ear	35	111	Hi-Pass 16
20T-MP	0000283 0000775 0001020	Over Ear	38	114	Mild 22
22E-MP-AGC	025700 027210 034211	Over Ear	31	104	Comp. 14
24-SL	061025 062200 063734	Over Ear	56	128	Moder. 38
26E-HT-CPC	025730 030752 032825	Over Ear	47	119	Hi-Pass 5
28E-MP-HF	012527 015333 016310	Over Ear	43	115	Mild 16
34D-SL-PC	002199 002203 002244	Over Ear Spec.	52	127	Dir. 7
Sonotone Corporation					
35-AX	A57335 X57243 A57354 X57264 A57357 X57332	Bicros	44	121	

Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
35-AZ	A57339 Z57315 A57349 Z57318 A57338 Z57321	Cros	52	124	
36-21	1796 1846 2838	Over Ear	42	116	Mild 27
40-6	30562 30610 30665	Eye Glass	51	123	Moder. 22
77-D	18587D 18604D 19478D	Over Ear Spec.	48	123	Dir. 10
77-S	18347S 19027S 19087S	Over Ear	50	124	Moder. 4
670-XV	A9376 B4203 B4560	On Body	72	142	Ex. Strong 4

Telex Communications Division

25	8456 8466 8528	In Ear	44	119	
33D	0508 0551 1127	Over Ear Spec.	51	127	Dir. 16
70	0648 0696 0777	On Body	60	132	Strong 2
331-H	618 739 0787	Over Ear	46	120	Hi-Pass 4
334	340265 340277 340313	Over Ear	38	113	Mild 5

Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
Vicon Instrument Company					
OE-123	28320 28326 28493	Over Ear	48	120	Mild 19 Moder. 30
OE-124	28124 28186 28232	Over Ear	47	119	Mild 10 Moder. 20
OE-132	CXP CYN CYS	Over Ear	36	113	Hi-Pass 7
OE-139	AWY BBK BCA	Over Ear	35	112	Mild 2 Dir. 2
OE-150	BFA BGR BGV	Over Ear	55	126	Moder. 24
OE-159	ASJ BBI BCK	Over Ear	35	110	Dir. 1 Comp. 2
T-141	01170 01181 01225	Eye Glass Spec.	63	129	
Widex Hearing Aid Company, Inc.					
45	605665 605673 605713	On Body	65	137	Strong 13 Ex. Strong 3
52	632191 636014 638894	Over Ear	56	128	Moder. 25 Strong 7
85	23118 23175 49953	Over Ear	35	120	Hi-Pass 8
105	68639X 68777X 69788X	Over Ear	48	121	Mild 23 Moder. 33

Chief Medical Director (112C2)

<u>Hearing Aid Model</u>	<u>Serial No.</u>	<u>Type</u>	<u>Gain</u>	<u>SSPL</u>	<u>Rank</u>
A-1-T	29817 29826 29841	Over Ear	45	121	Comp. 5
A-3-T	27190 42083 42085	Over Ear Spec.	41	114	Dir. 5 Comp. 6
Zenith Hearing Aid Corporation					
Biphasic	OR5161 OL5161 OR5196 OL5196 OR5202 OL5202	Eye Glass Spec.	46	112	
Carlo-CM	40026 40119 40135	Eye Glass	43	115	Mild 15
Cros	8815106 8815175 8815106	Cros	35	117	
Pacemaker-EP II	UP107 UP110 UP118	Over Ear	53	128	Moder. 1
Vocalizer-III	25096 25873 26677	On Body	60	133	Strong 1
Vocalizer-400	V1188 V1193 V1199	Over Ear	52	126	Moder. 5

4. Changes in the Contract Year 1976 Solicitation, Offer, And Award are indicated and will be forthcoming shortly.

  
A. A. GAVAZZI  
Hospital Director

#### SECTION IV

PERFORMANCE MEASUREMENT DATA ON EACH OF THREE SAMPLE  
INSTRUMENTS FOR EACH MODEL SUBMITTED.

## ACOUSTICAL PERFORMANCE OF FISCAL 1975 HEARING AIDS

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E. D. Burnett and M. A. Bassin

Sound Section  
Mechanics Division  
Institute for Basic Standards  
Washington, D. C. 20234

August 1974

Report to  
Veterans Administration  
Department of Medicine and Surgery  
Washington, D. C.



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U. S. DEPARTMENT OF COMMERCE, Frederick B. Dent, Secretary  
NATIONAL BUREAU OF STANDARDS, Richard W. Roberts, Director



ACOUSTICON  
MODEL:1001ATC TONE:NONE TUBING:1 1/4 BATTERY:S13

EG

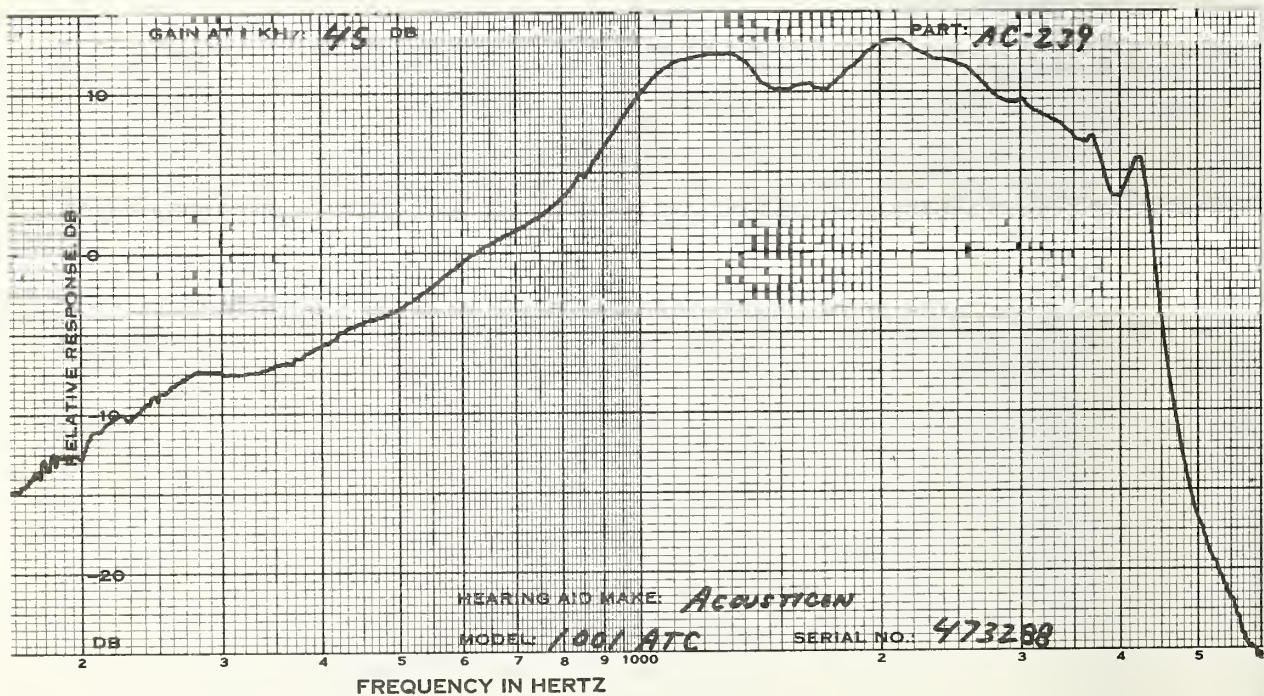
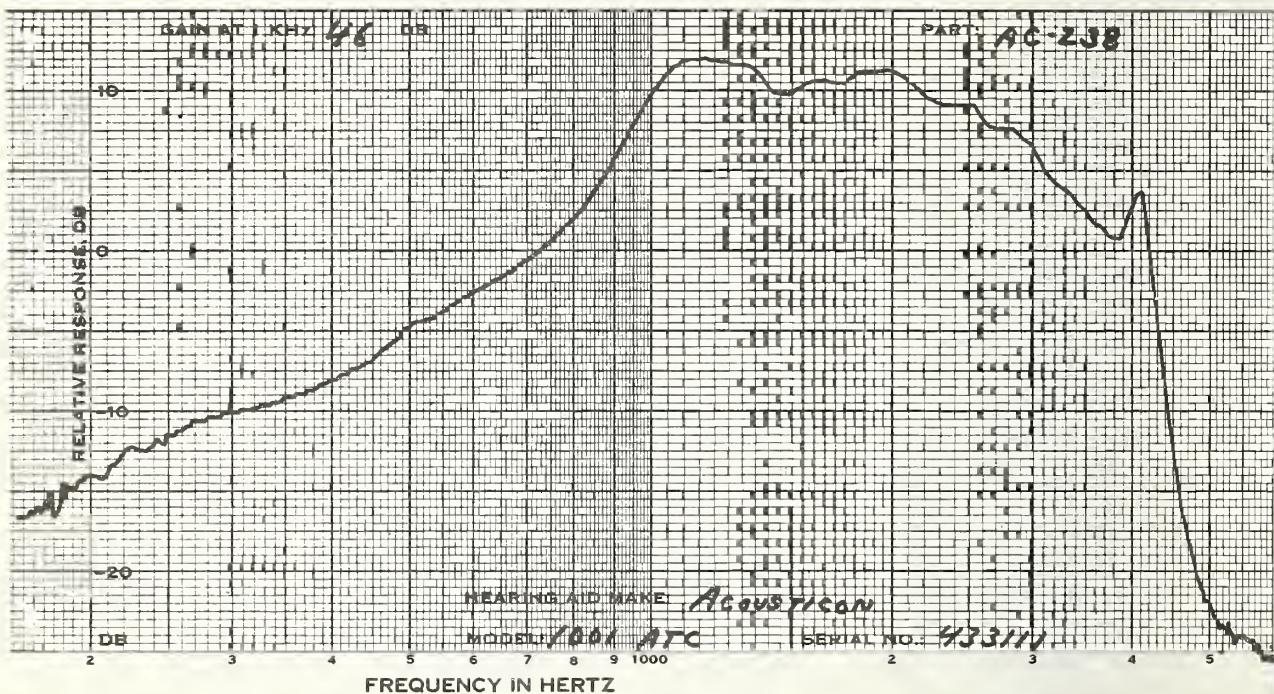
CODE	AC-238	AC-239	AC-240
SERIAL #	433111	473288	473302
DATE		MAR 29, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

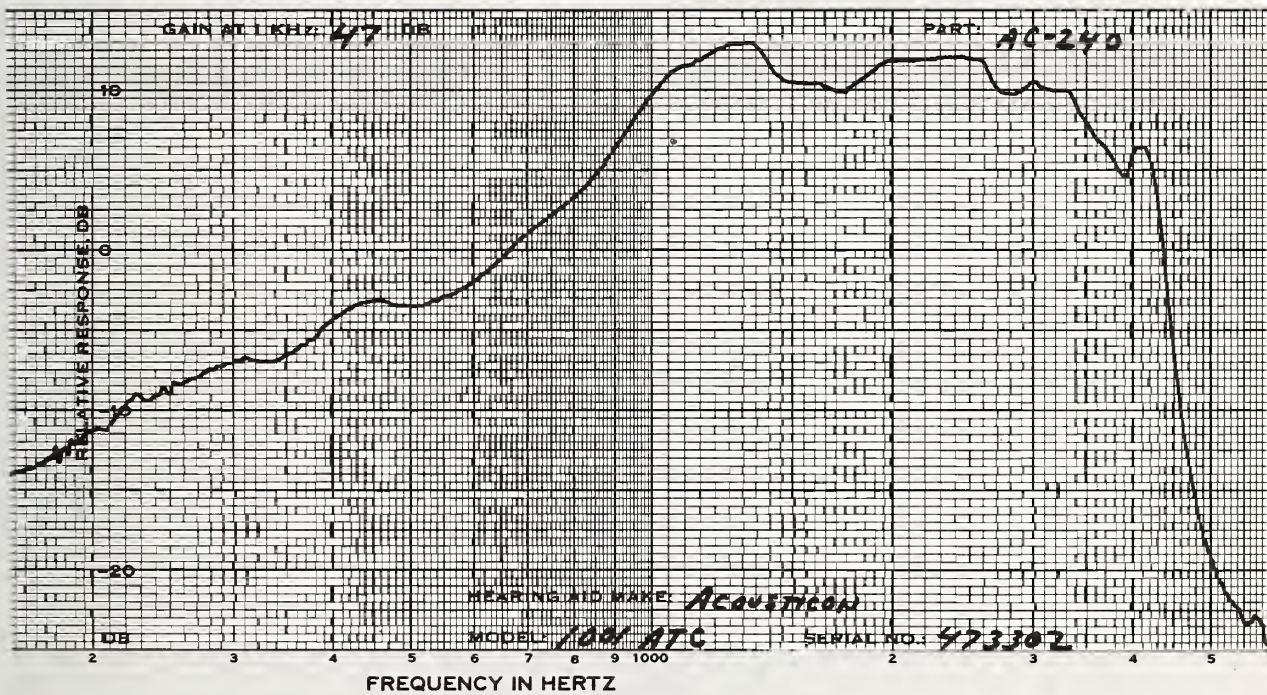
1KHZ GAIN DB	51.0	48.0	48.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.5	76.0	77.0
OUTPUT LEVEL DB	115.0	114.5	116.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	46.0	45.0	47.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	16 33	9 16	10 18
700 HZ %	7 20	5 12	6 15
900 HZ %	4 11	3 7	2 6
MAX DIST %	16 33	9 16	11 18
FREQ OF MAX DIS	500 500	500 500	540 610
S/N RATIO DB			
1KHZ SIGNAL	41.0	41.5	40.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.1	1.3	1.2
65 DB INPUT	1.1	1.3	1.2
BATTERY VOLTAGE	1.58	1.58	1.57







ACOUSTICON

HP OE

MODEL:690E-ATC TONE:C TUBING:1 1/4 BATTERY:S76

CODE	AC-242	AC-241	AC-243
SERIAL #	403143	383381	453378
DATE		APR 1, 1974	

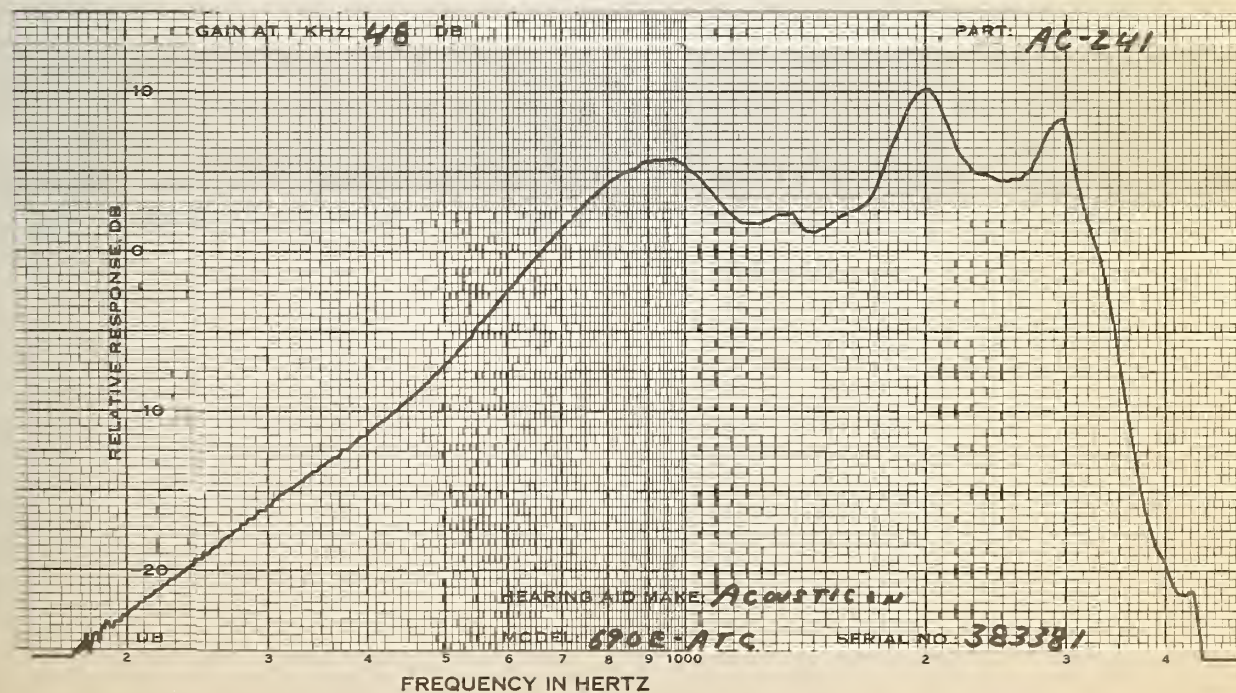
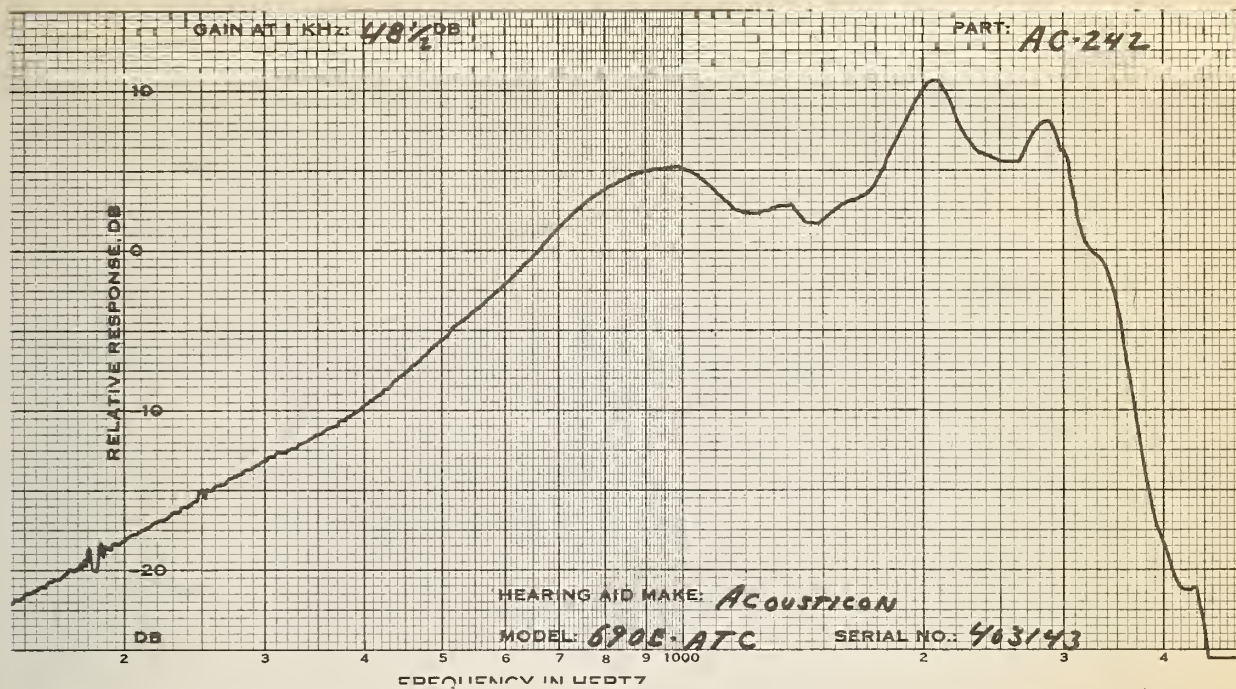
MEASUREMENTS WITH  
FULL VOL CONTROL

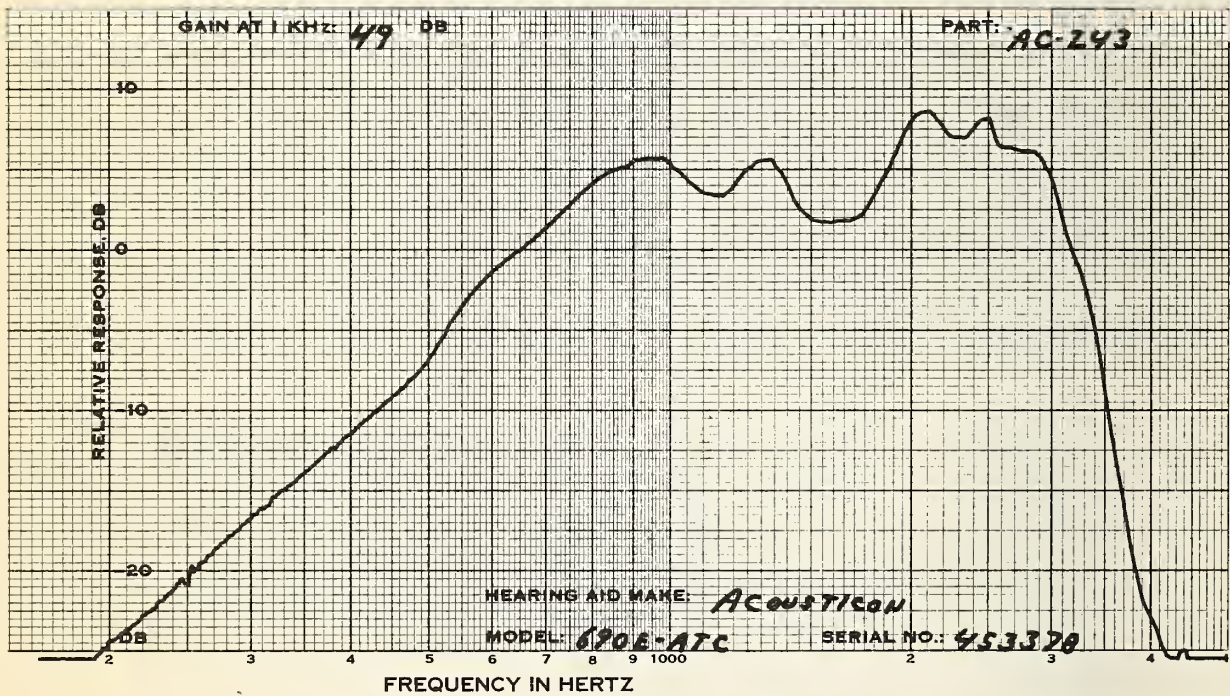
1KHZ GAIN DB	48.0	48.5	49.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.0	77.5	77.0
OUTPUT LEVEL DB	118.5	118.5	119.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	48.0(FULL)	48.5(FULL)	49.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.5 70.5	60.0 70.0	60.0 70.0
1000 HZ %	3 11	3 12	3 8
1500 HZ %	3 7	3 9	2 6
2000 HZ %	0 0	0 0	0 0
MAX DIST %	3 11	3 12	4 17
FREQ OF MAX DIS	1500 1000	1500 1000	1290 1290
S/N RATIO DB			
1KHZ SIGNAL	42.0	42.5	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.1	2.1	2.1
65 DB INPUT	2.1	2.1	2.1
BATTERY VOLTAGE	1.57	1.58	1.58
S/N 2KHZ	47.5	49.0	49.5









ACOUSTICON  
MODEL:A650C TONE:NONE TUBING:1 1/4 BATTERY:S13

CODE	AC-244	AC-245	AC-246
SERIAL #	303193	413333	473199
DATE		APR 4, 1974	

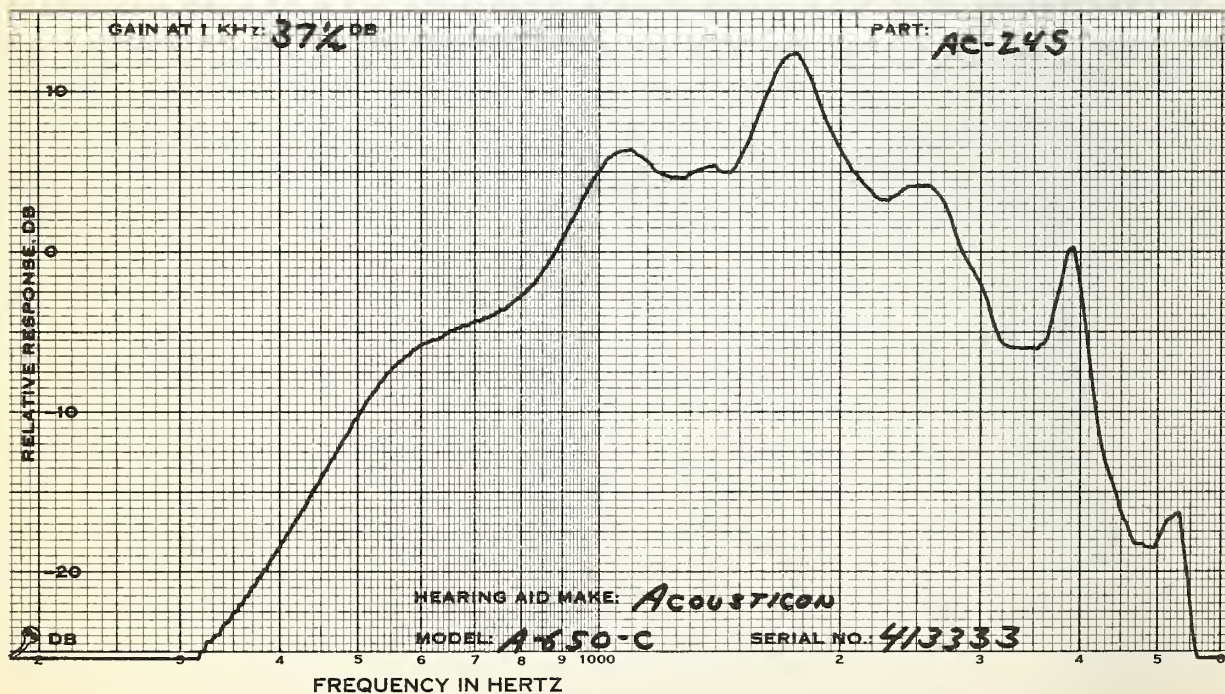
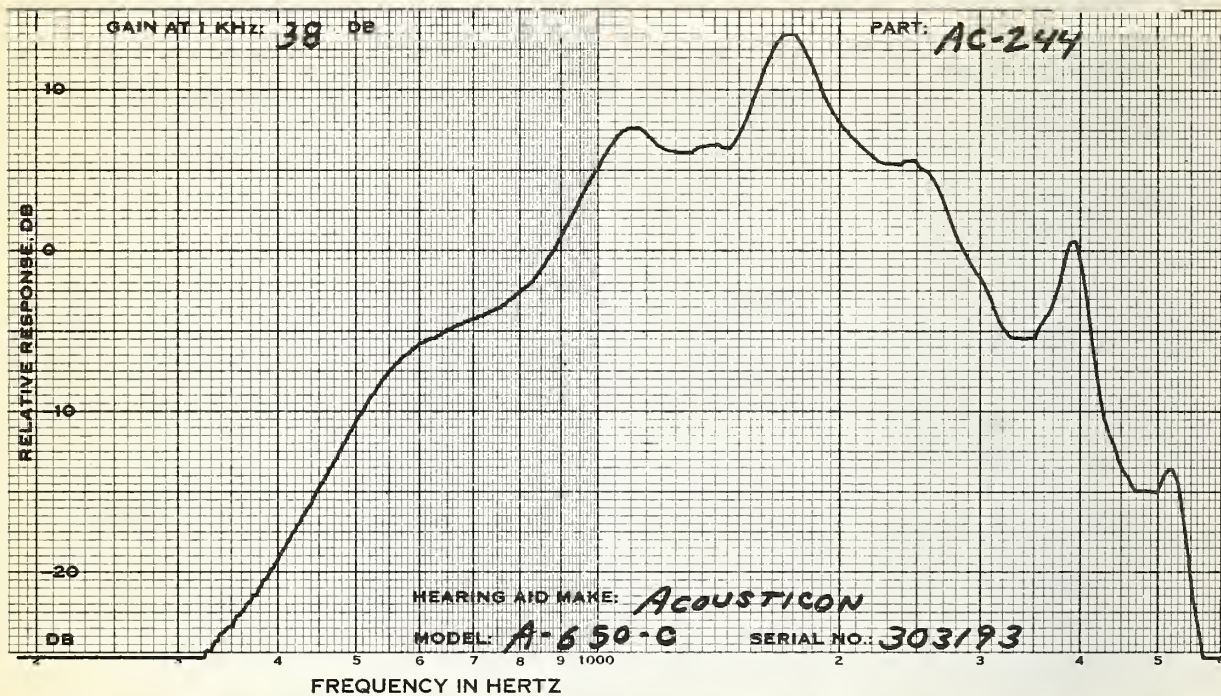
MEASUREMENTS WITH  
FULL VOL CONTROL

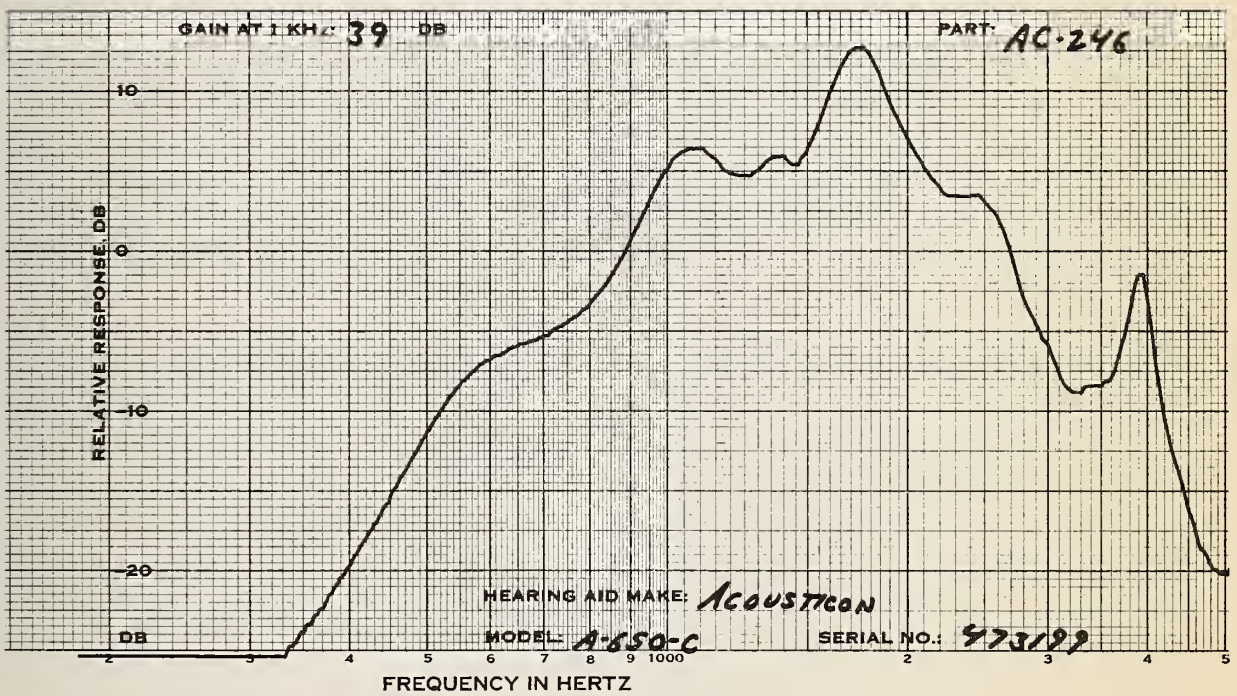
1KHZ GAIN DB	46.5	46.5	47.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	74.0	75.0
OUTPUT LEVEL DB	107.5	107.0	108.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	38.0	37.5	39.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 3	6 3	6 3
700 HZ %	2 1	2 2	2 2
900 HZ %	2 2	2 3	2 3
MAX DIST %	6 4	6 4	6 4
FREQ OF MAX DIS	500 860	500 870	500 870
S/N RATIO DB			
1KHZ SIGNAL	42.0	44.0	43.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.5	.6	.5
65 DB INPUT	.5	.6	.5
BATTERY VOLTAGE	1.58	1.58	1.58









## ACOUSTICON

OE

MODEL:A690ET TONE:A TUBING:1 1/8 BATTERY:S76

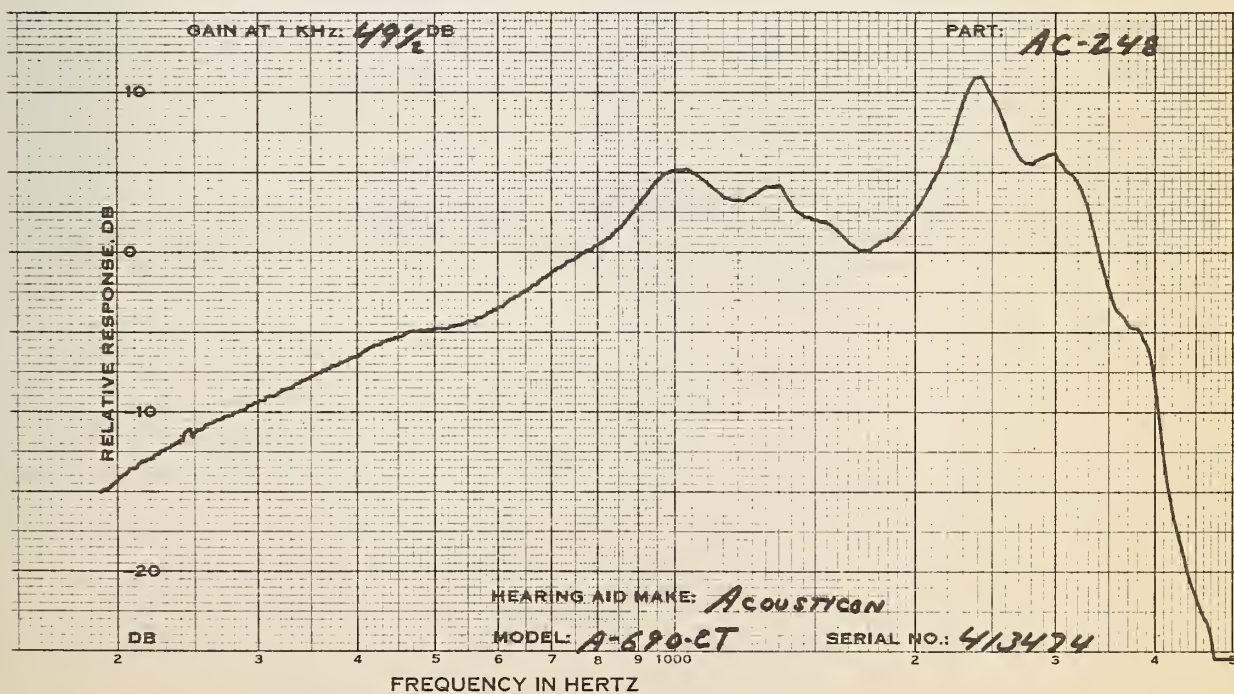
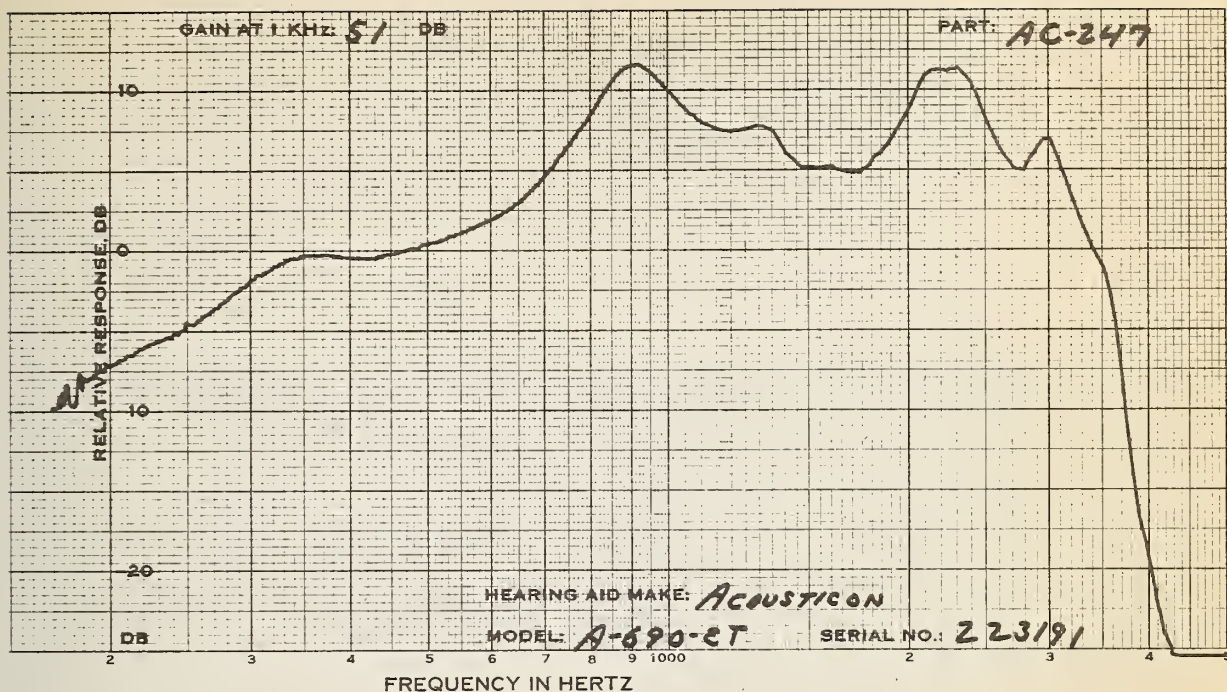
CODE	AC-247	AC-248	AC-249
SERIAL #	223191	413474	503114
DATE		APR 4, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	51.5	51.5	55.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.5	76.0	78.0
OUTPUT LEVEL DB	120.0	118.0	119.5

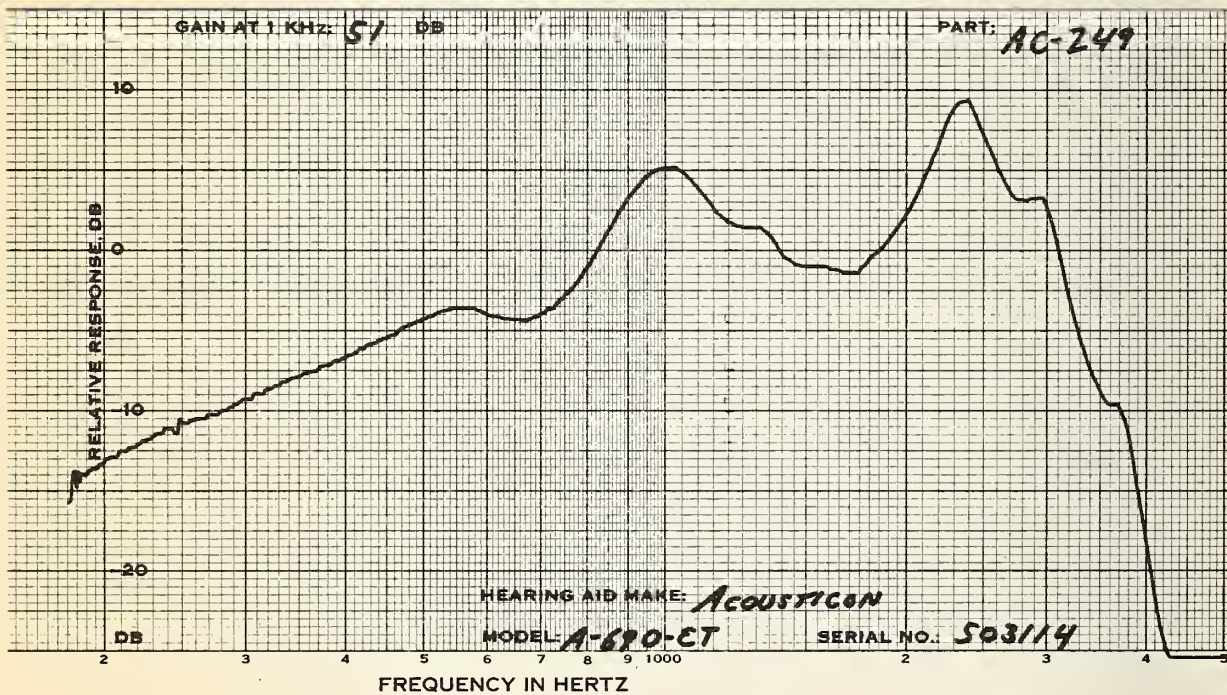
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	51.0	49.5	51.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 11	10 19	10 26
700 HZ %	3 7	3 10	1 6
900 HZ %	2 7	2 6	3 6
MAX DIST %	5 11	10 19	10 26
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	43.5	43.5	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.1	2.1	2.1
65 DB INPUT	2.1	2.1	2.1
BATTERY VOLTAGE	1.58	1.59	1.58



GAIN AT 1 KHZ: 51 DB

PART: AC-249



ACOUSTICON				DB	
MODEL:A770G		TONE:MAX(CCW)		PWR:MAX(CCW) RECEIVER:CF8 BAT:401(2)	

CODE	AC-250	AC-251	AC-252
SERIAL #	463412	463454	463508
DATE		MAY 1, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

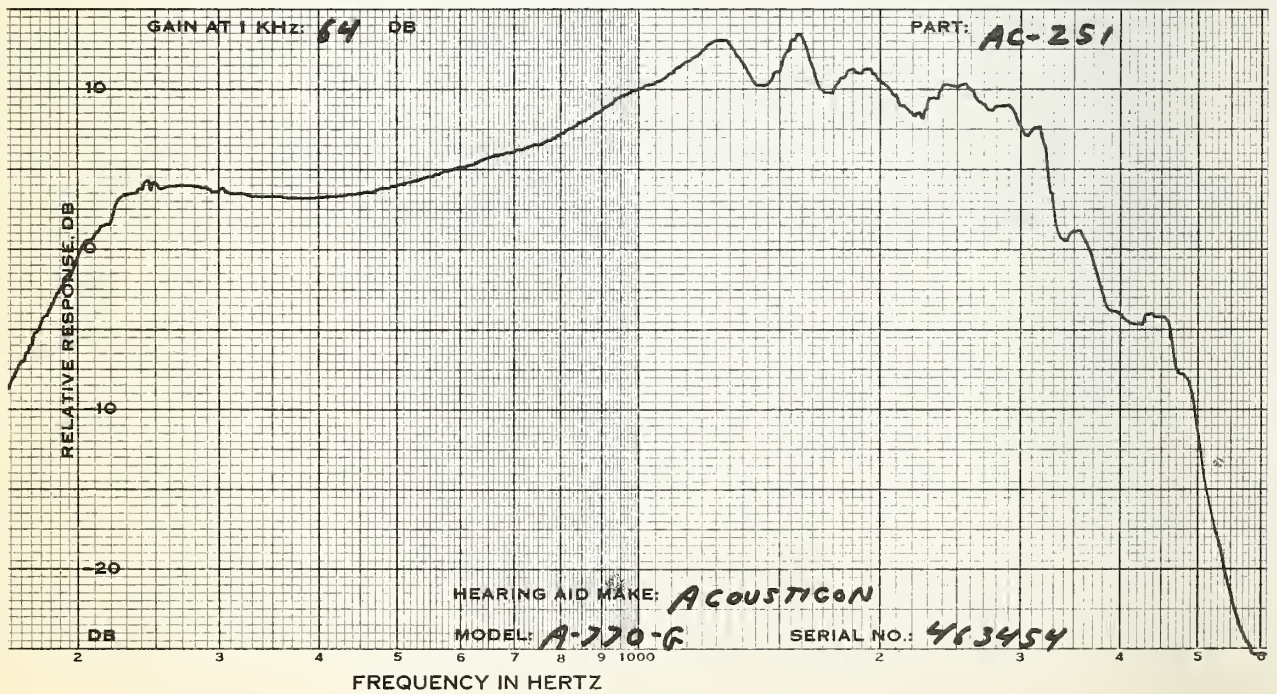
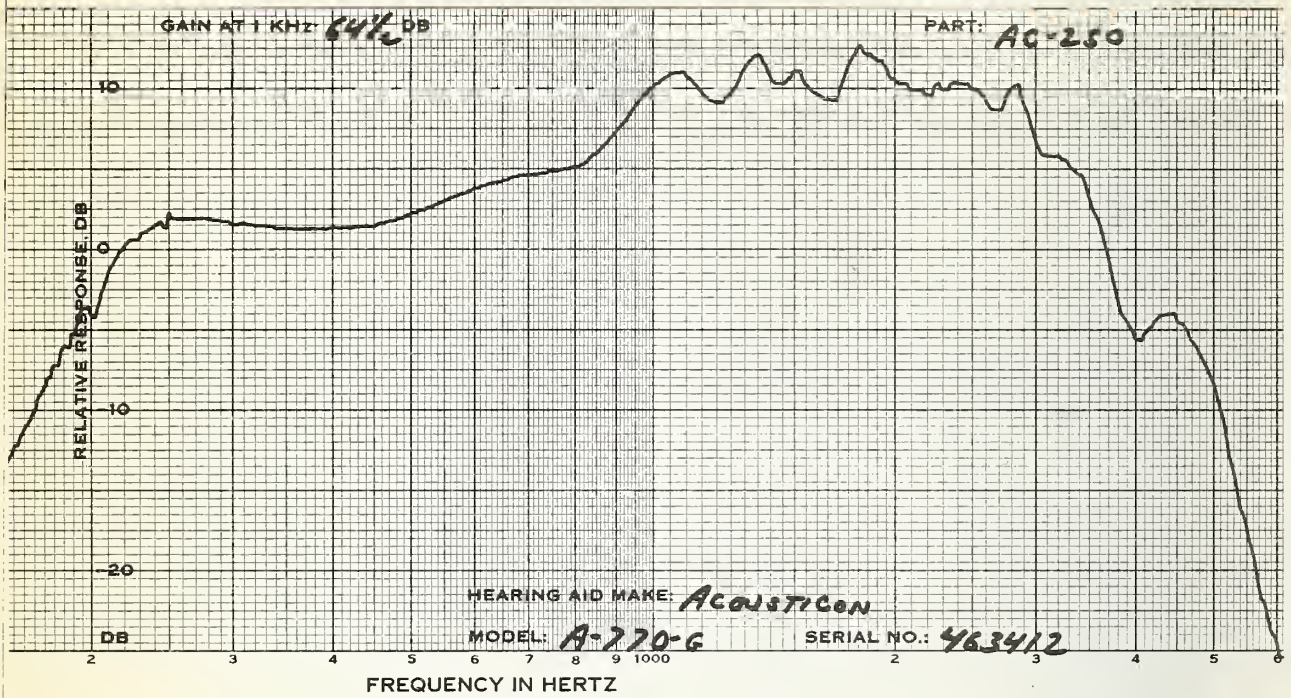
1KHZ GAIN DB	73.0	73.5	73.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	68.5	67.5	66.5
OUTPUT LEVEL DB	134.0	134.5	133.5

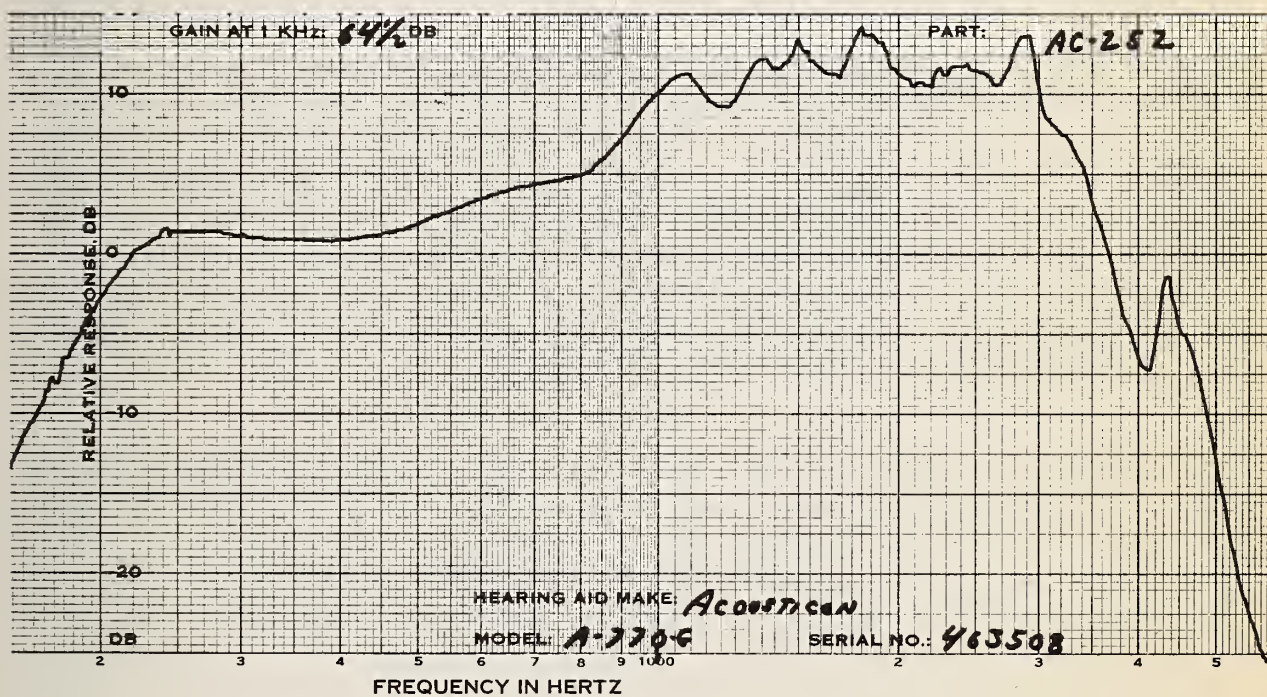
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	64.5	64.0	64.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 16	5 18	8 15
700 HZ %	6 17	6 18	6 18
900 HZ %	8 18	5 19	4 16
MAX DIST %	9 19	7 19	8 18
FREQ OF MAX DIS	980 620	550 900	550 700
S/N RATIO DB			
1KHZ SIGNAL	45.0	44.5	44.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	68.0	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.7 3.7	3.7 3.7	3.6 3.6
65 DB INPUT	8.0 9.0	11.0 11.0	12.0 11.5
BATTERY VOLTAGE	1.43 1.44	1.43 1.43	1.44 1.44









ACOUSTICON  
 MODEL:A1001 CROS TONE:A TUBING:1 1/8 BATTERY:S13 CROS EG

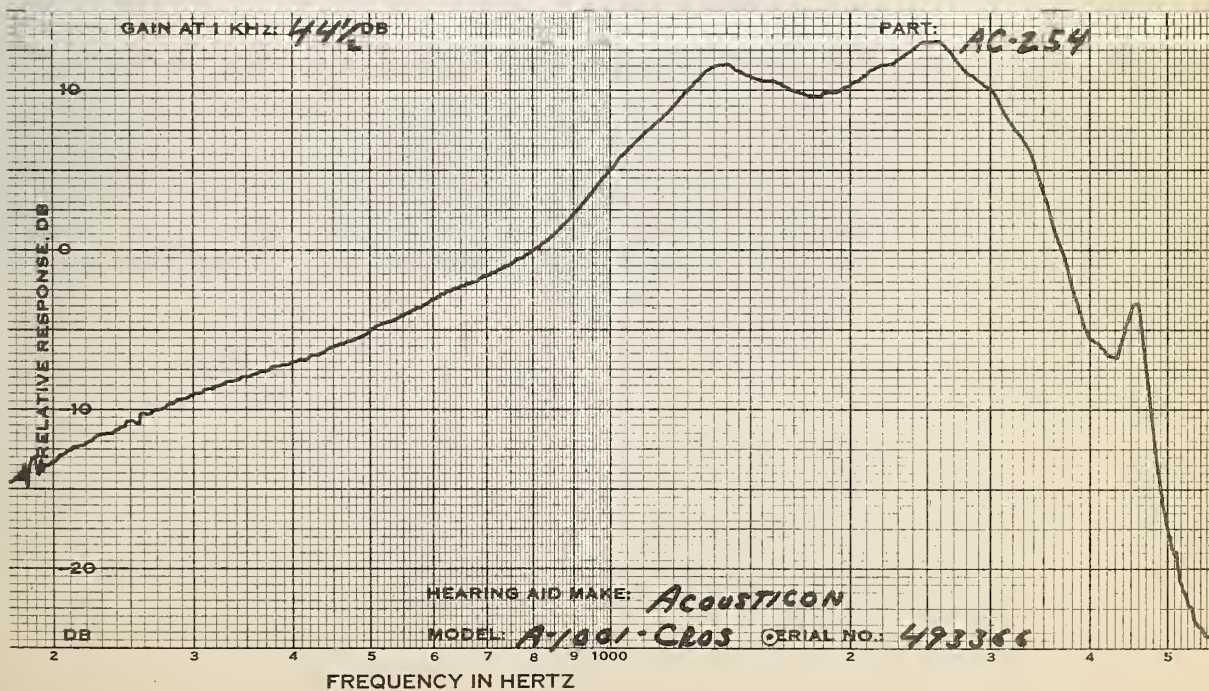
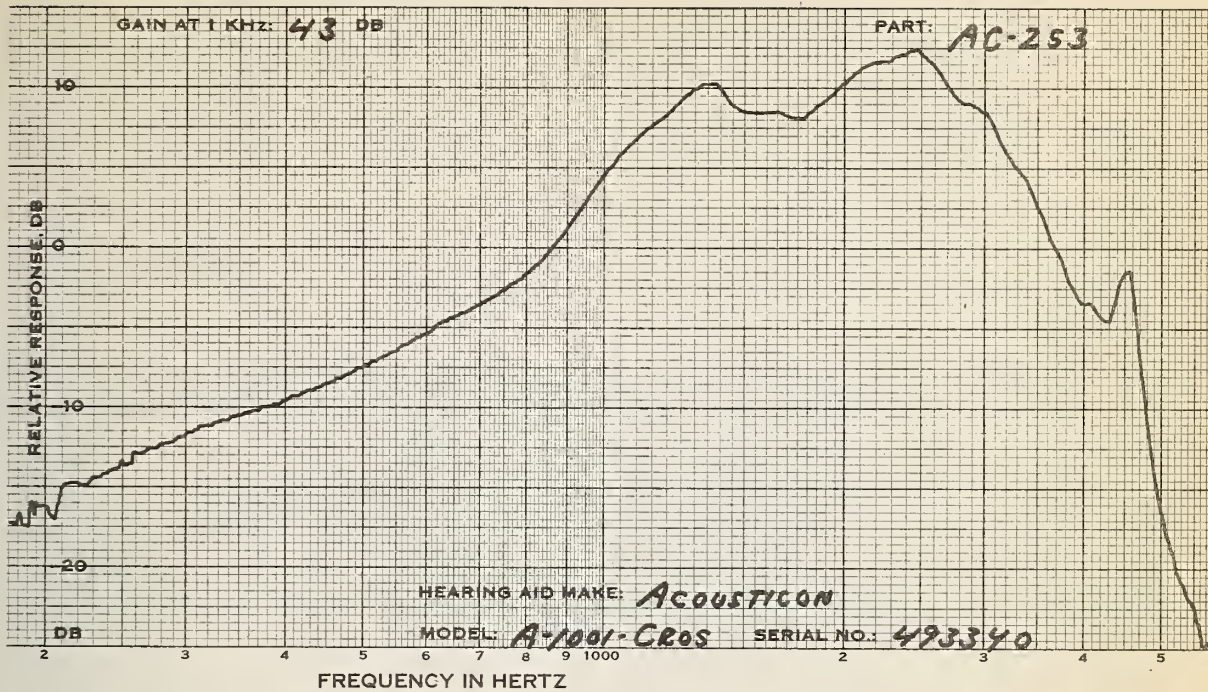
CODE	AC-253	AC-254	AC-255
SERIAL #	493340	493366	493370
DATE		APR 3, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

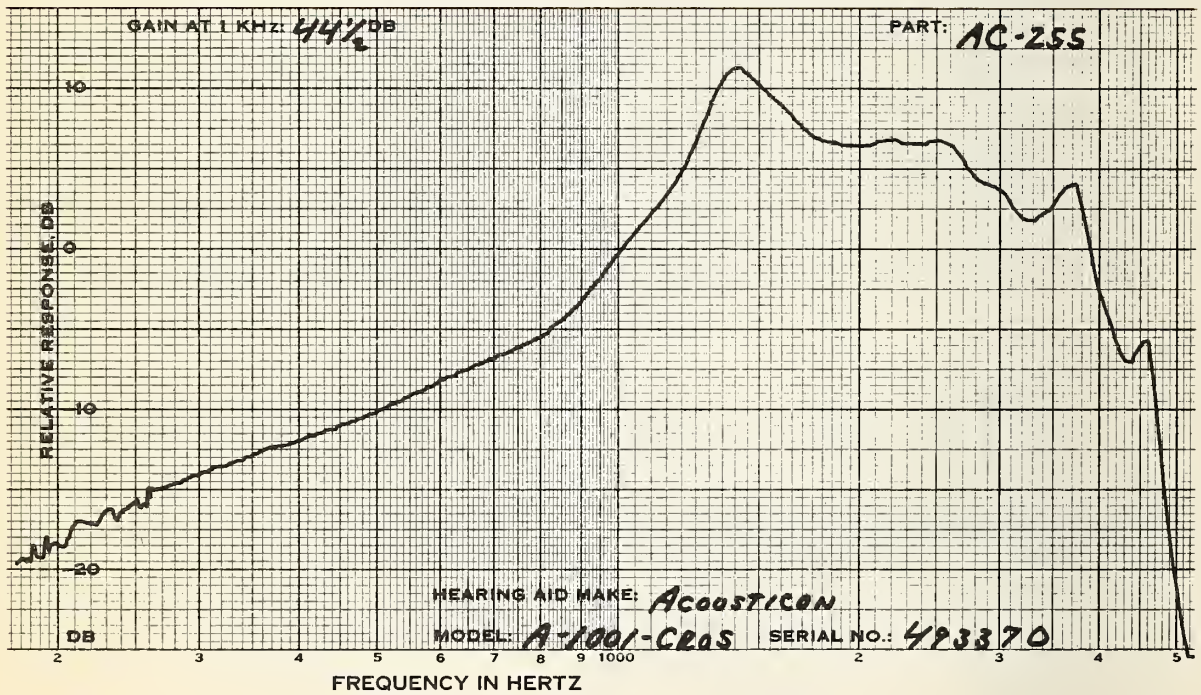
1KHZ GAIN DB	48.0	47.0	47.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	76.0	75.0
OUTPUT LEVEL DB	115.0	117.0	119.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	43.0	44.5	44.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 7	7 13	6 13
700 HZ %	6 8	8 17	11 26
900 HZ %	3 5	4 9	4 8
MAX DIST %	7 8	8 19	11 30
FREQ OF MAX DIS	560 1610	610 640	680 690
S/N RATIO DB			
1KHZ SIGNAL	40.5	40.0	39.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.4	1.4	1.4
65 DB INPUT	1.4	1.4	1.4
BATTERY VOLTAGE	1.57	1.57	1.57







ACOUSTICON  
 MODEL:A465SSR TONE:NONE MED. SIZE NUB BATTERY:S312

IE

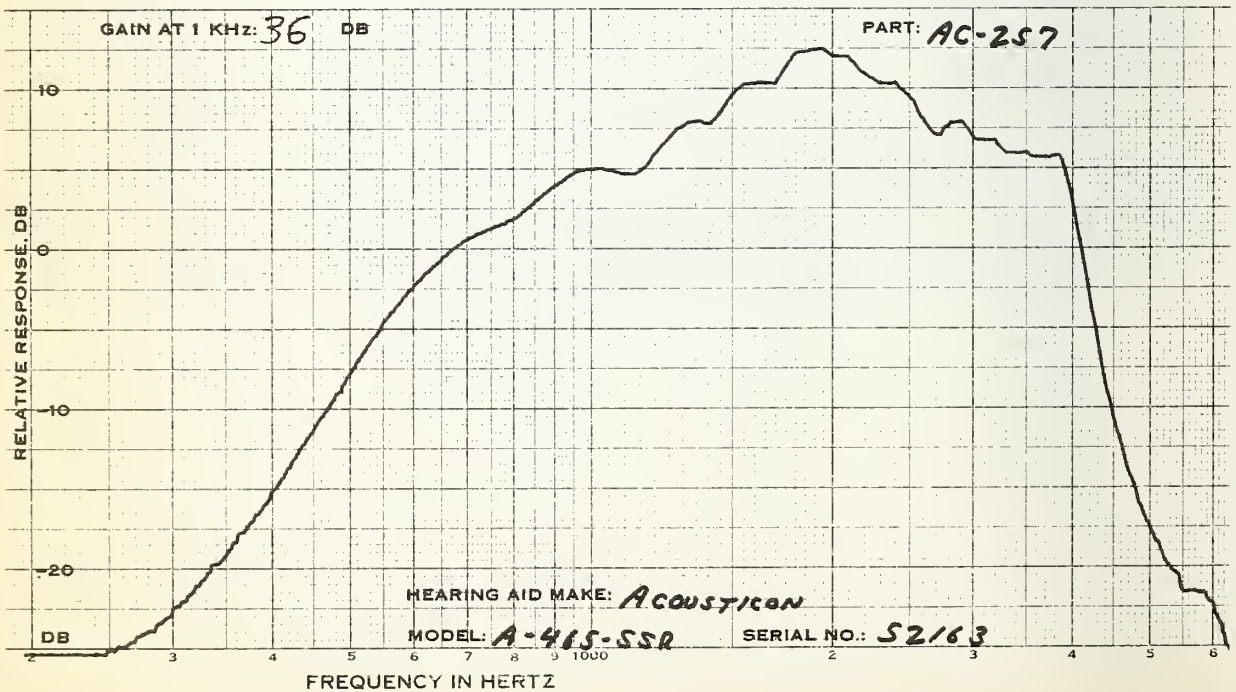
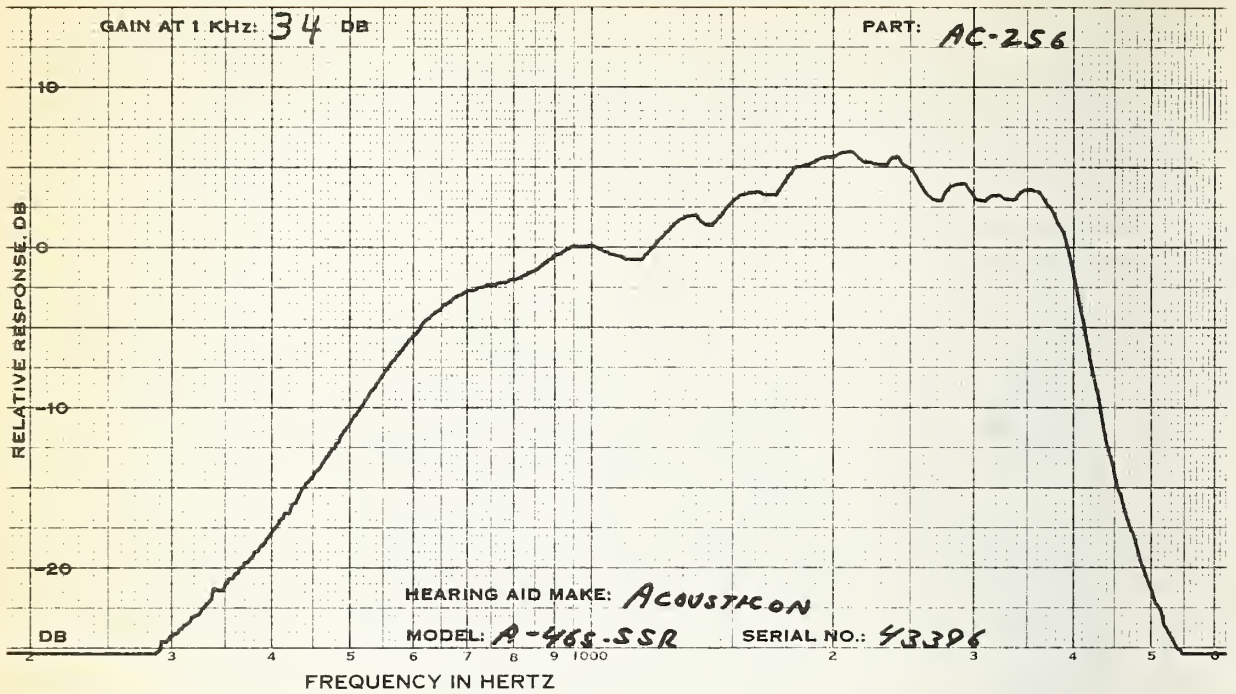
CODE	AC-256	AC-257	AC-258
SERIAL #	43396	52163	52233
DATE		MAY 14, 1974	

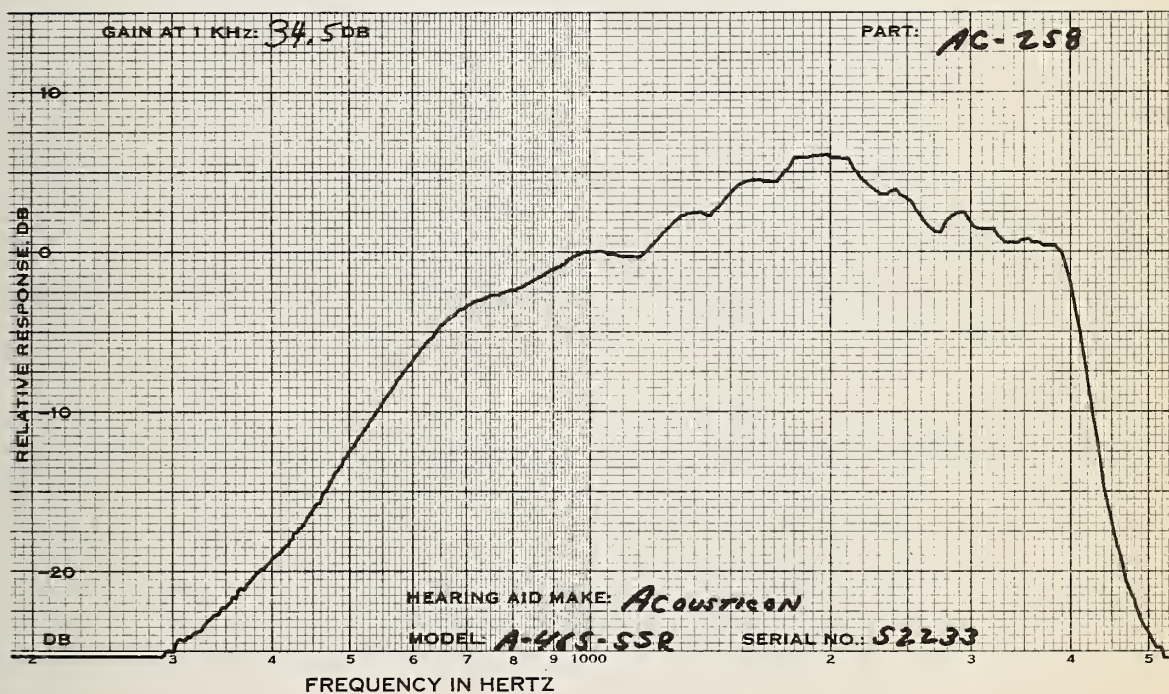
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	34.0	36.0	34.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.0	76.0	75.5
OUTPUT LEVEL DB	109.5	109.0	110.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	34.0(FULL)		36.0(FULL)		34.5(FULL)	
HARMONIC DIST						
@INPUT LEVEL DB	62.5	72.5	62.5	72.5	63.0	73.0
500 HZ %	4	4	5	5	5	5
700 HZ %	2	2	2	3	2	3
900 HZ %	2	4	3	6	2	5
MAX DIST %	4	4	5	6	5	5
FREQ OF MAX DIS	500	900	500	1000	500	900
S/N RATIO DB						
1KHZ SIGNAL	37.5		40.0		39.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	.8		.8		.8	
65 DB INPUT	.8		.8		.8	
BATTERY VOLTAGE	1.57		1.57		1.57	







## AUDIOTONE

MODEL:A20 P2 TONE:NONE TUBING:7/8 BATTERY:S76

OE

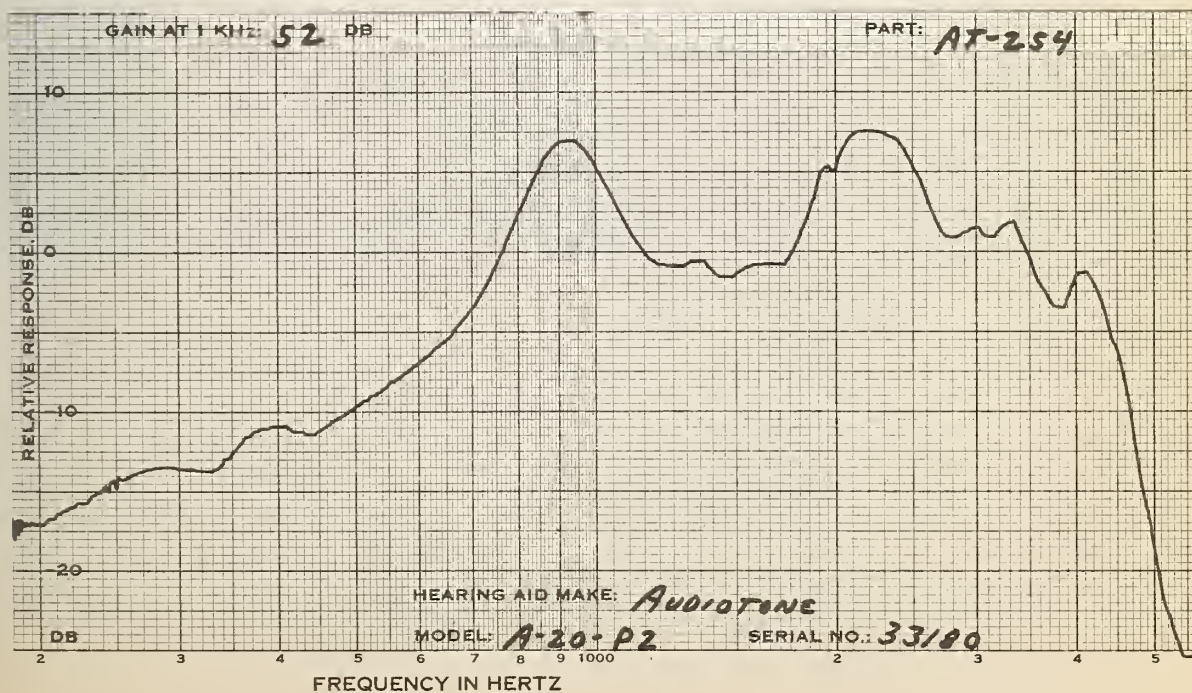
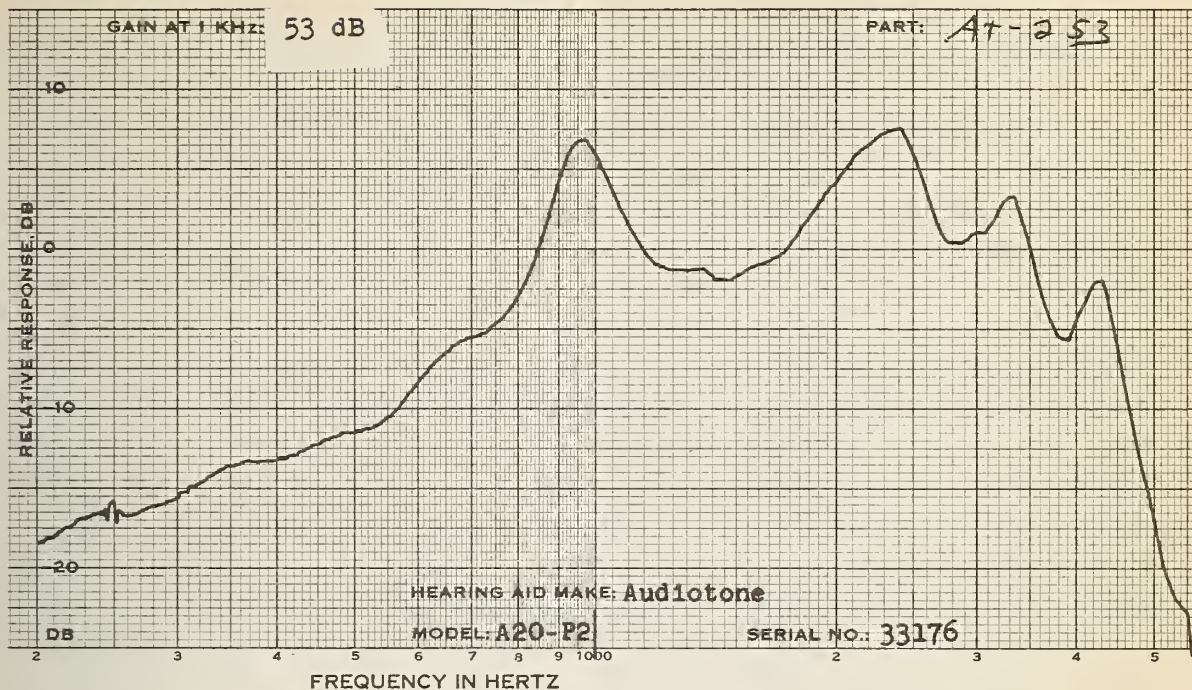
CODE	AT-253	AT-254	AT-255
SERIAL #	33176	33180	33214
DATE		APR 9, 1974	

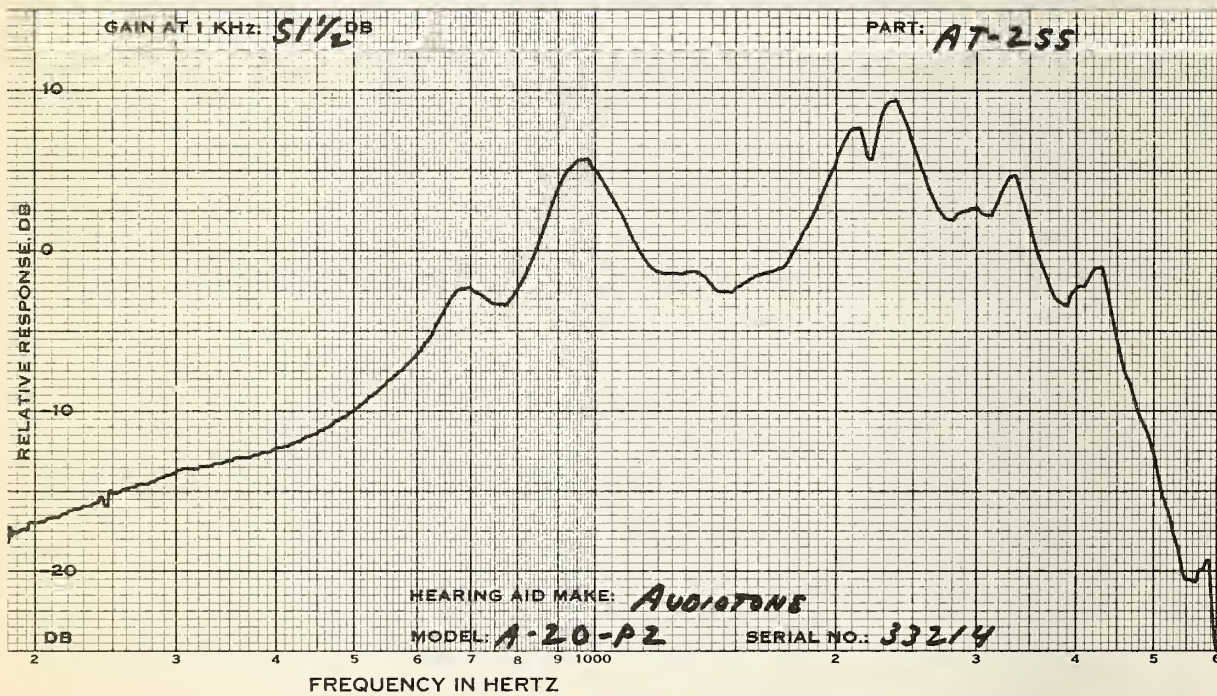
MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	55.5	58.0	54.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	71.0	73.5
OUTPUT LEVEL DB	120.5	121.0	120.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	53.0	52.0	51.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	9 13	8 12	7 11
700 HZ %	2 3	2 4	2 4
900 HZ %	1 1	0 0	1 1
MAX DIST %	9 54	8 37	7 49
FREQ OF MAX DIS	1580 1580	500 1610	1620 1630
S/N RATIO DB			
1KHZ SIGNAL	48.0	46.5	47.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.2	2.2	2.2
65 DB INPUT	2.2	2.2	2.2
BATTERY VOLTAGE	1.57	1.58	1.58







AUDIOTONE HP OE  
 MODEL:A20 P5 TONE:NONE TUBING:7/8 BATTERY:S76

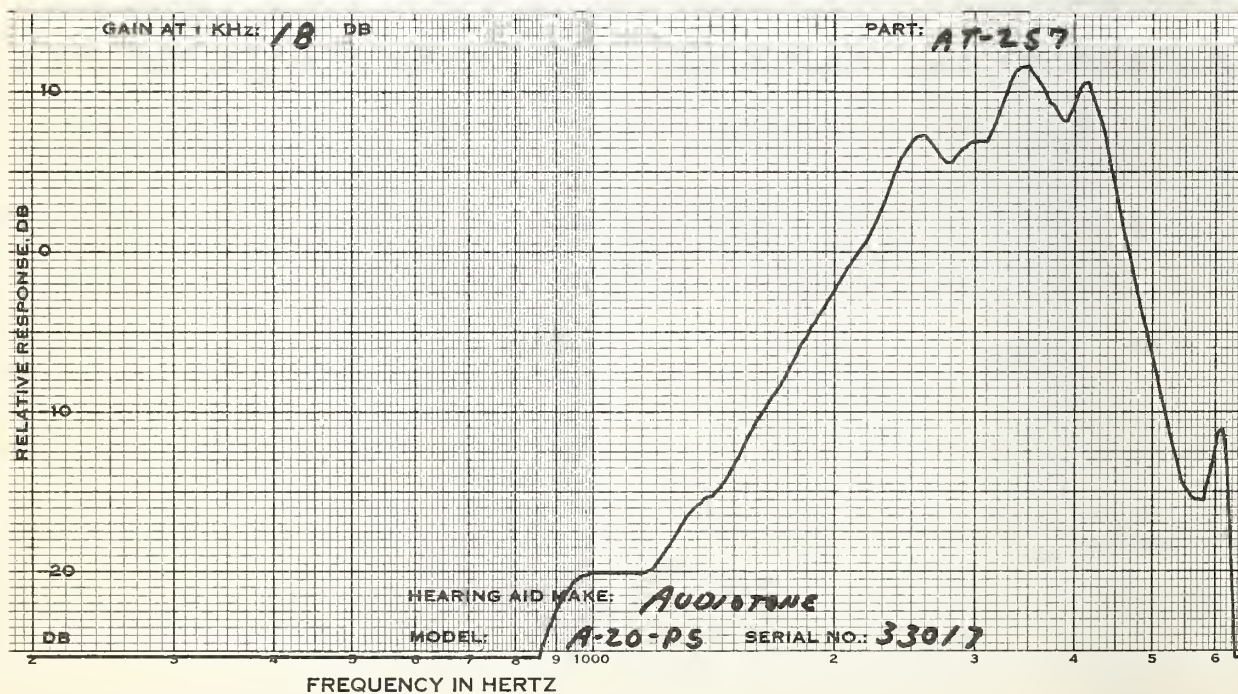
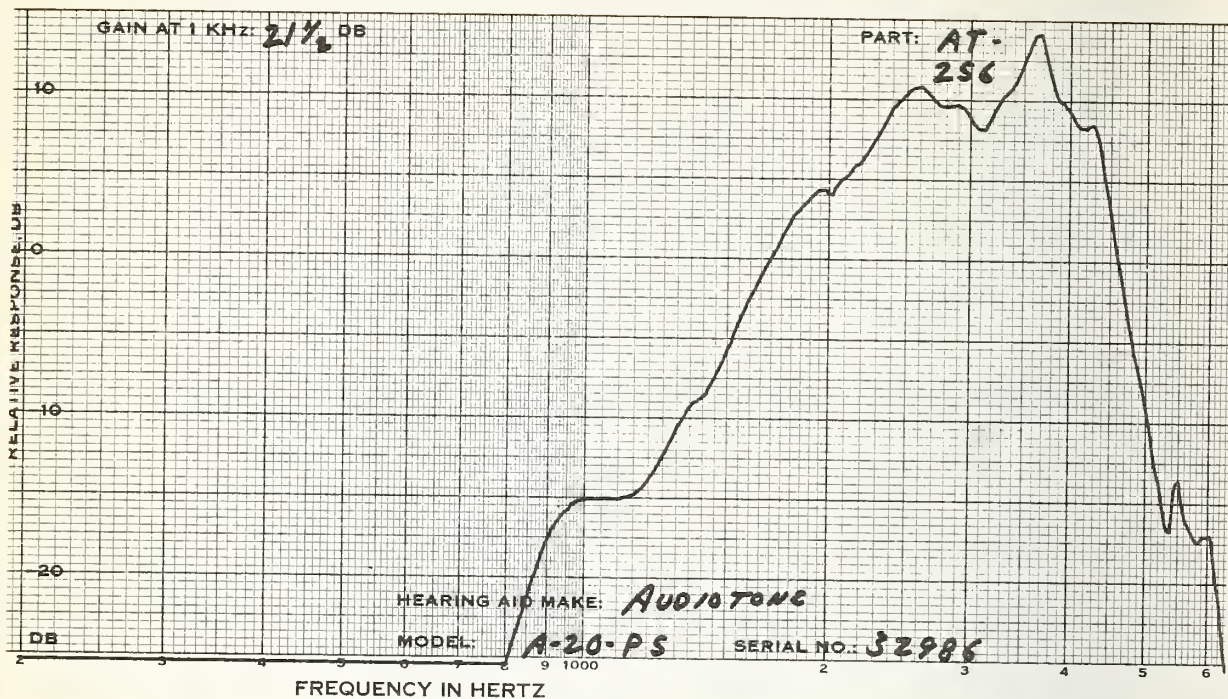
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SERIAL #	32986	33017	33031
DATE		APR 9, 1974	

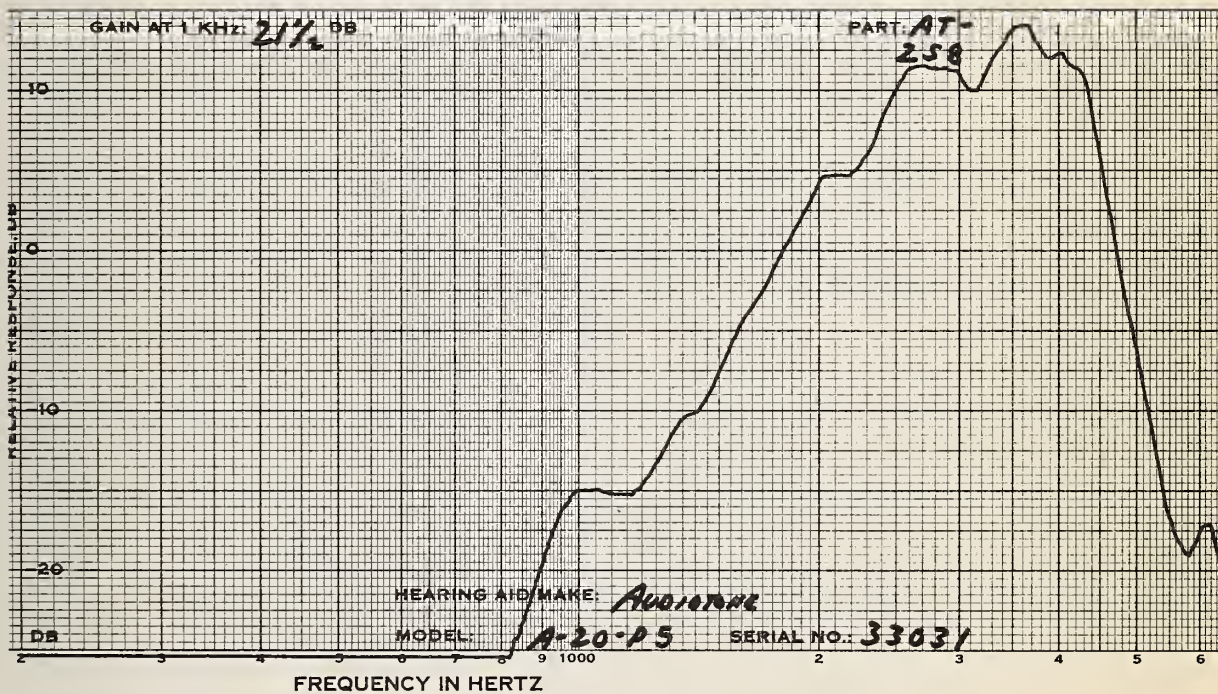
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	21.5	18.0	21.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.0	77.0	77.0
OUTPUT LEVEL DB	114.0	113.0	114.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	21.5(FULL)	18.0(FULL)	21.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	63.0 73.0	63.0 73.0	63.0 73.0
1000 HZ %	4 3	4 2	4 3
1500 HZ %	3 5	6 11	5 8
2000 HZ %	1 4	2 10	1 5
MAX DIST %	9 7	10 21	10 14
FREQ OF MAX DIS	1260 1780	1650 1650	1300 1320
S/N RATIO DB			
1KHZ SIGNAL	21.0	19.0	19.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.8	1.8	1.8
65 DB INPUT	1.8	1.8	1.8
BATTERY VOLTAGE	1.57	1.58	1.58
S/N 2KHZ	41.0	37.5	39.5







## AUDIOTONE

MODEL:A23 TONE:NONE TUBING:7/8 BATTERY:S76

OE

CODE	AT-259	AT-260	AT-261
SERIAL #	11709	11731	11737
DATE		APR 8, 1974	

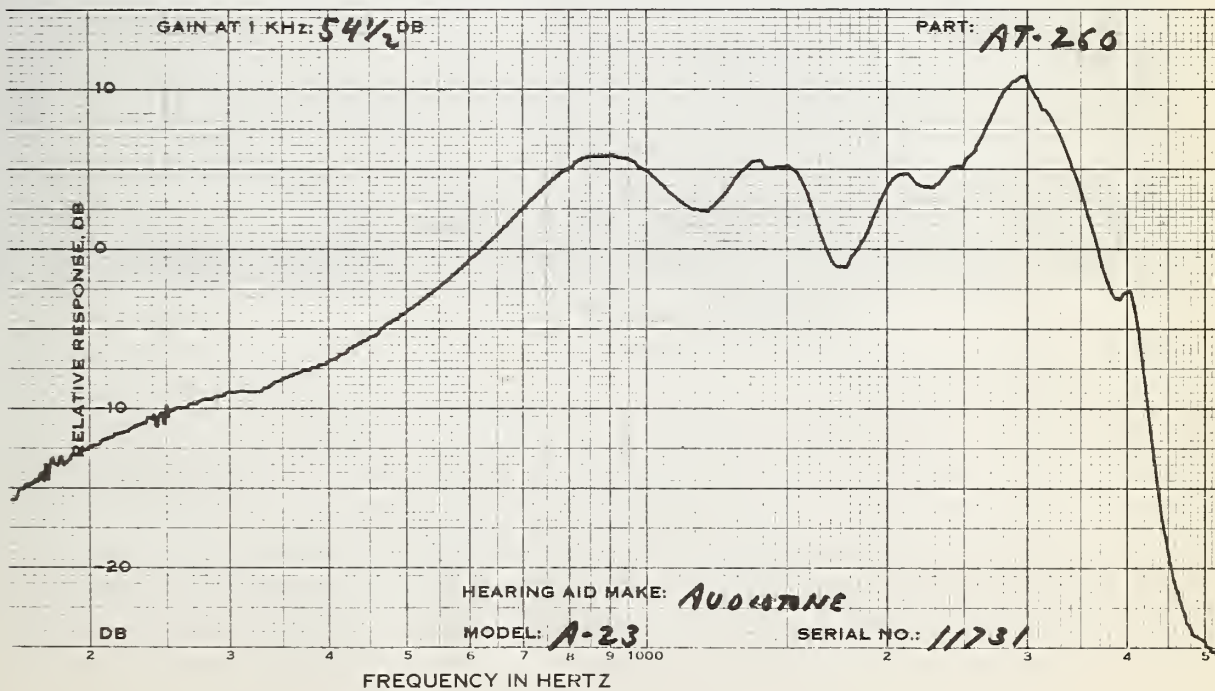
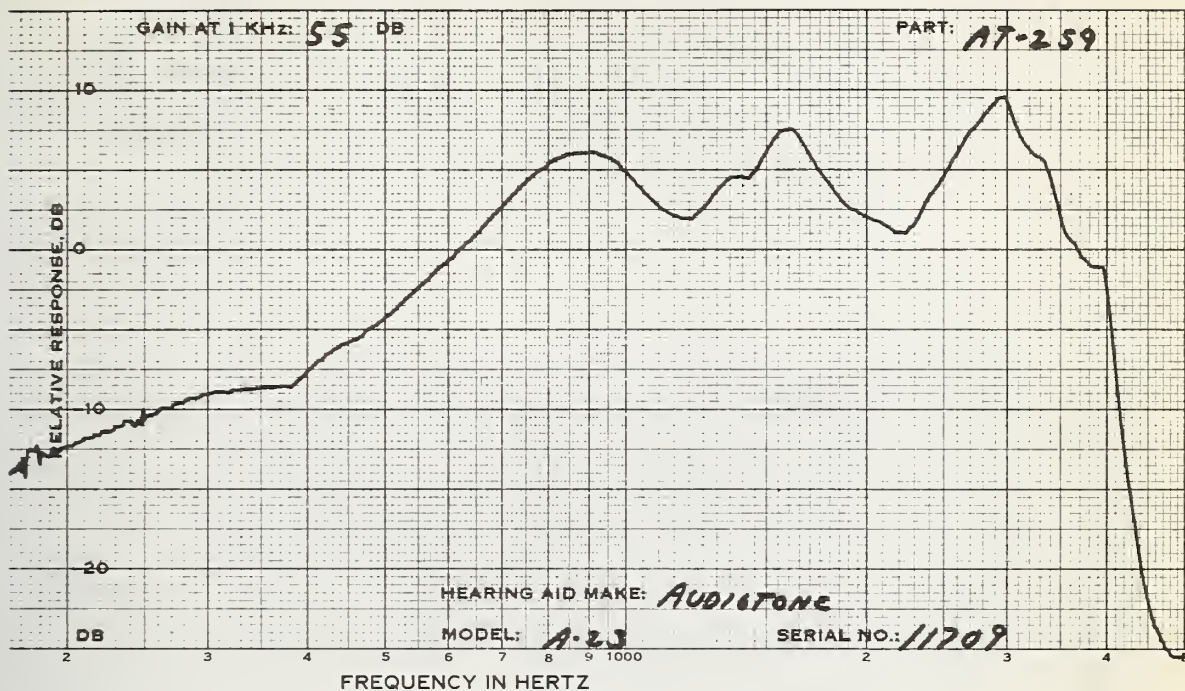
MEASUREMENTS WITH  
FULL VOL CONTROL

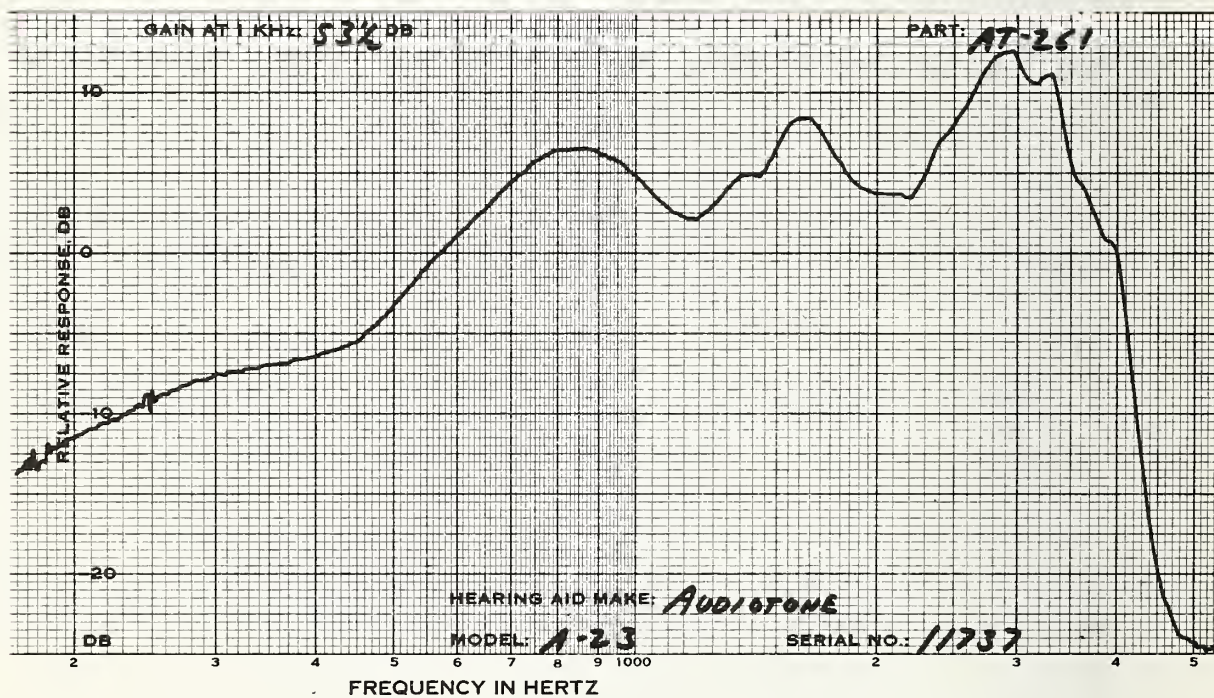
1KHZ GAIN DB	59.0	58.5	58.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.5	75.0	74.0
OUTPUT LEVEL DB	125.5	125.0	125.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	55.0	54.5	53.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 12	5 8	5 9
700 HZ %	2 4	2 4	2 4
900 HZ %	2 5	3 4	3 4
MAX DIST %	5 15	5 17	5 14
FREQ OF MAX DIS	500 1280	500 1330	500 1270
S/N RATIO DB			
1KHZ SIGNAL	41.5	40.5	41.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.0	1.0
65 DB INPUT	2.0	2.0	2.1
BATTERY VOLTAGE	1.58	1.58	1.58







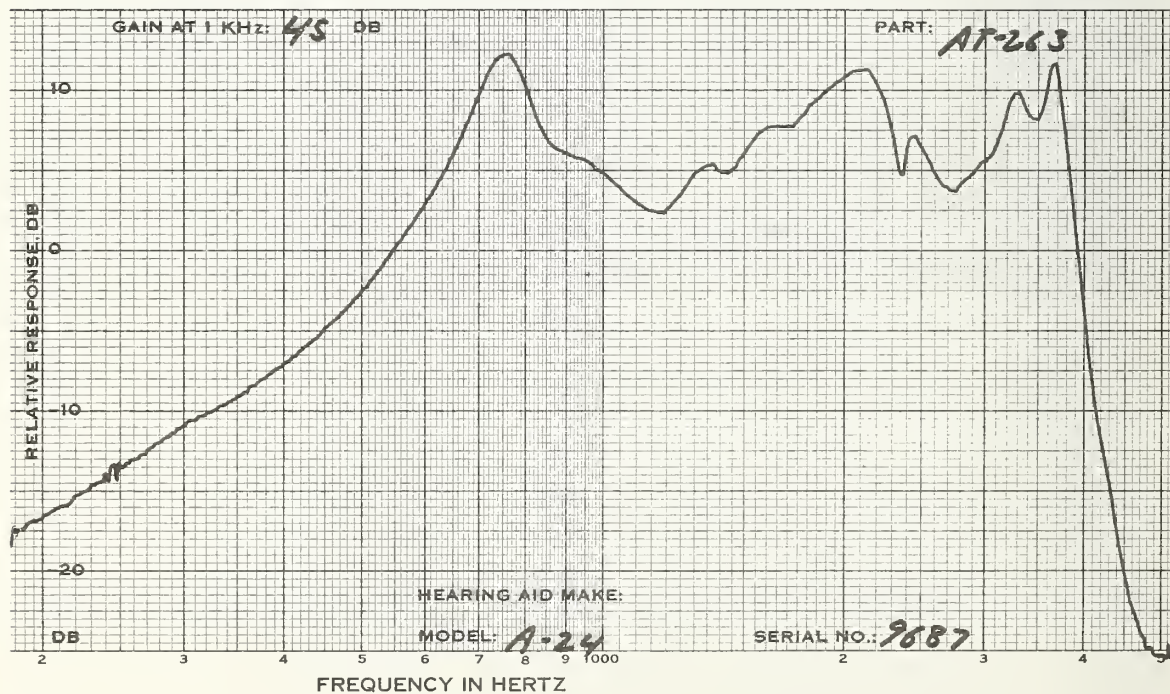
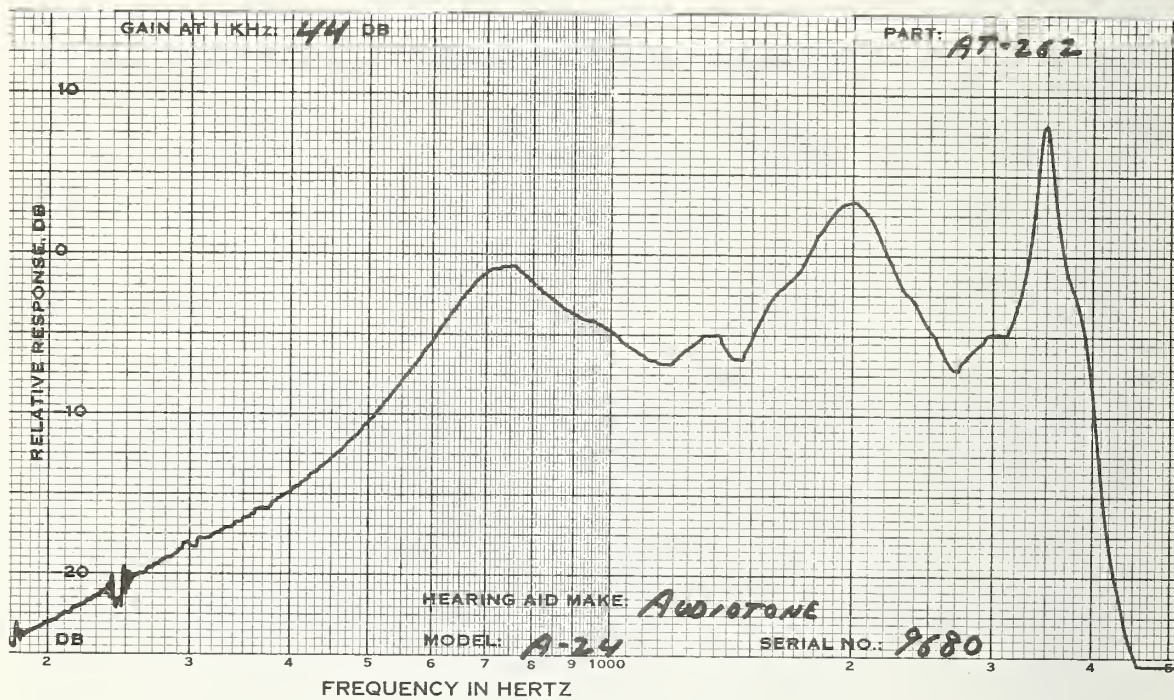
AUDIOTONE  
MODEL:A24    TONE:NONE    TUBING:7/8    BATTERY:S41    OE

CODE	AT-262	AT-263	AT-264
SERIAL #	9680	9687	9716
DATE		APR 8, 1974	

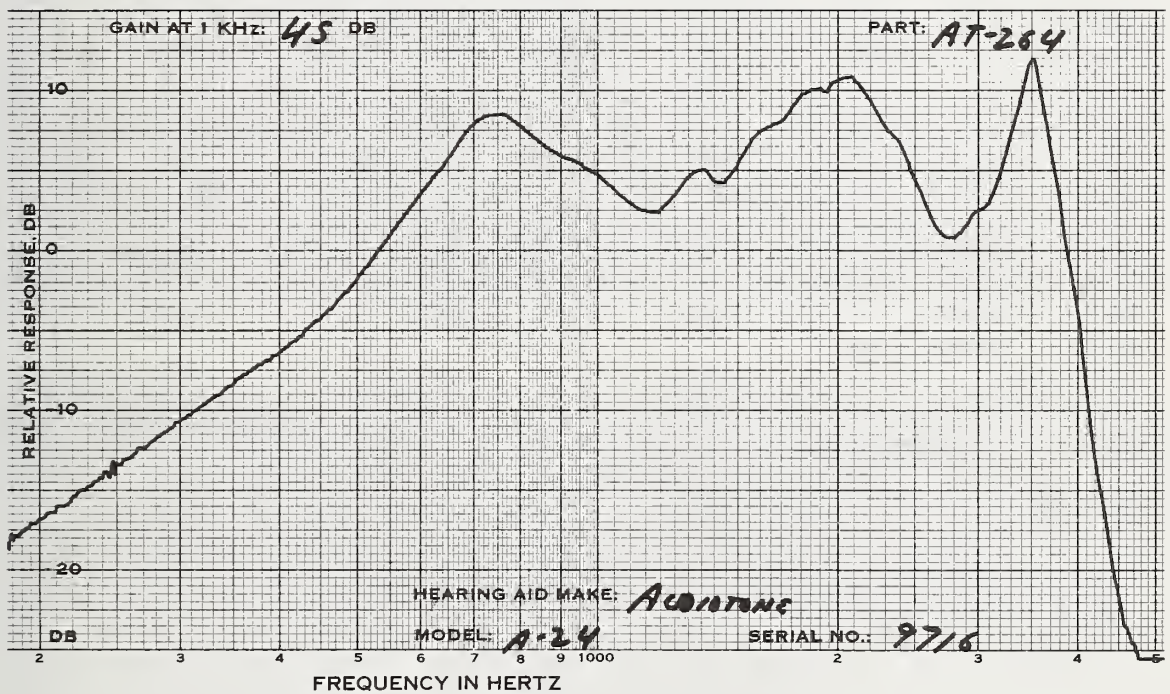
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN    DB	45.5	49.5	45.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.5	75.0	77.0
OUTPUT LEVEL DB	117.5	119.0	119.0

MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN    DB	44.0	45.0	45.0(FULL)
HARMONIC DIST			
@INPUT LEVEL    DB	60.0 70.0	60.0 70.0	60.5 70.5
500 HZ            %	3    7	3    6	3    9
700 HZ            %	1    3	1    5	1    2
900 HZ            %	3    12	1    6	3    11
MAX DIST          %	7    18	5    18	5    14
FREQ OF MAX DIS	1720 1740	1810 1810	1730 1730
S/N RATIO        DB			
1KHZ SIGNAL	41.0	40.5	39.5
S/HUM RATIO      DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.3	1.1	1.3
65 DB INPUT	1.3	1.1	1.3
BATTERY VOLTAGE	1.56	1.56	1.57









## AUDIOTONE

HP OE

MODEL:A24 P5 TONE:NONE TUBING:7/8 BATTERY:S41

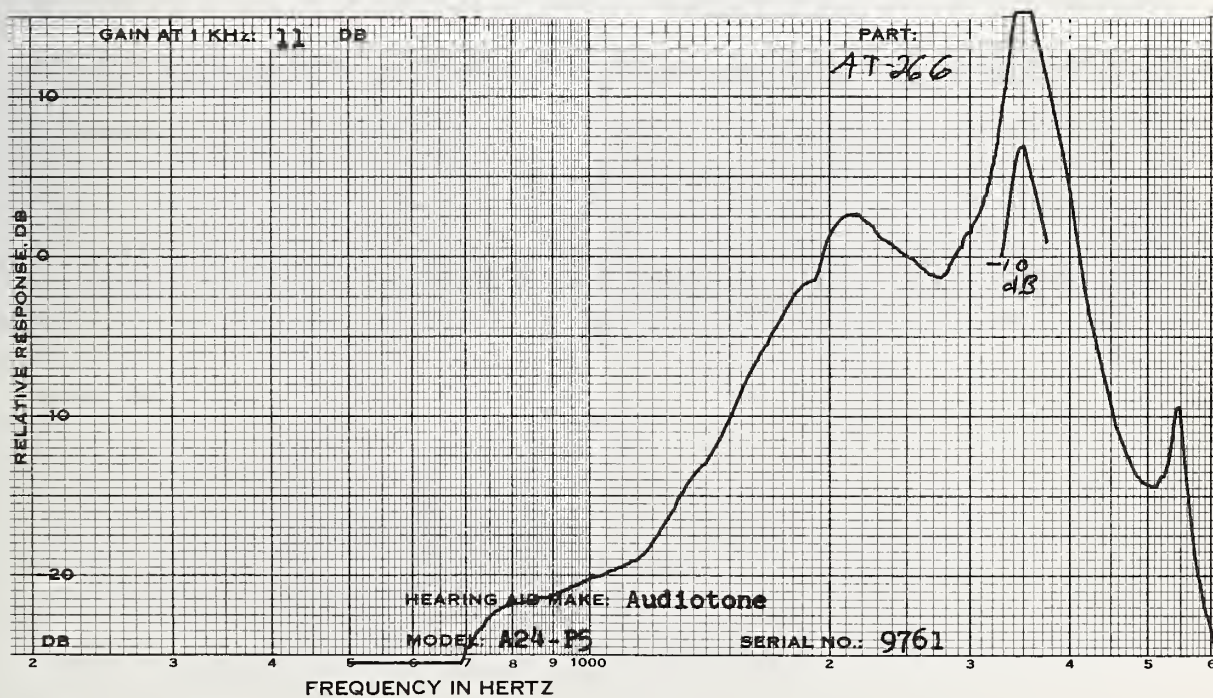
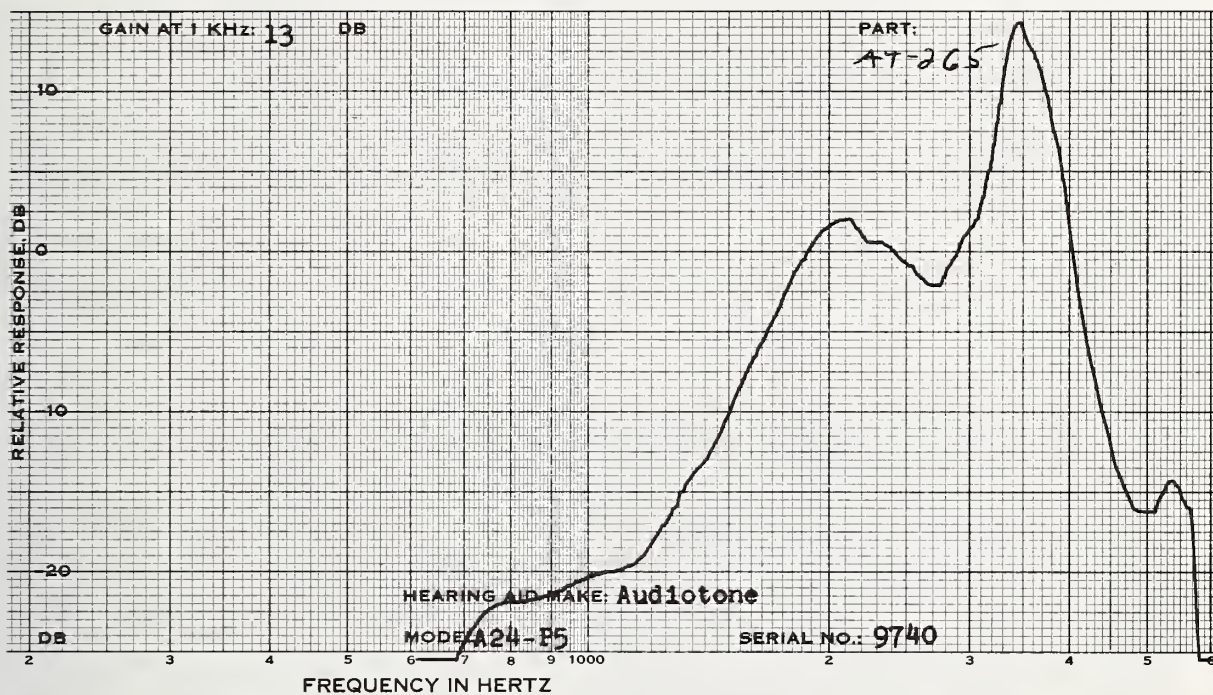
CODE	AT-265	AT-266	AT-267
SERIAL #	9740	9761	9770
DATE		APR 9, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

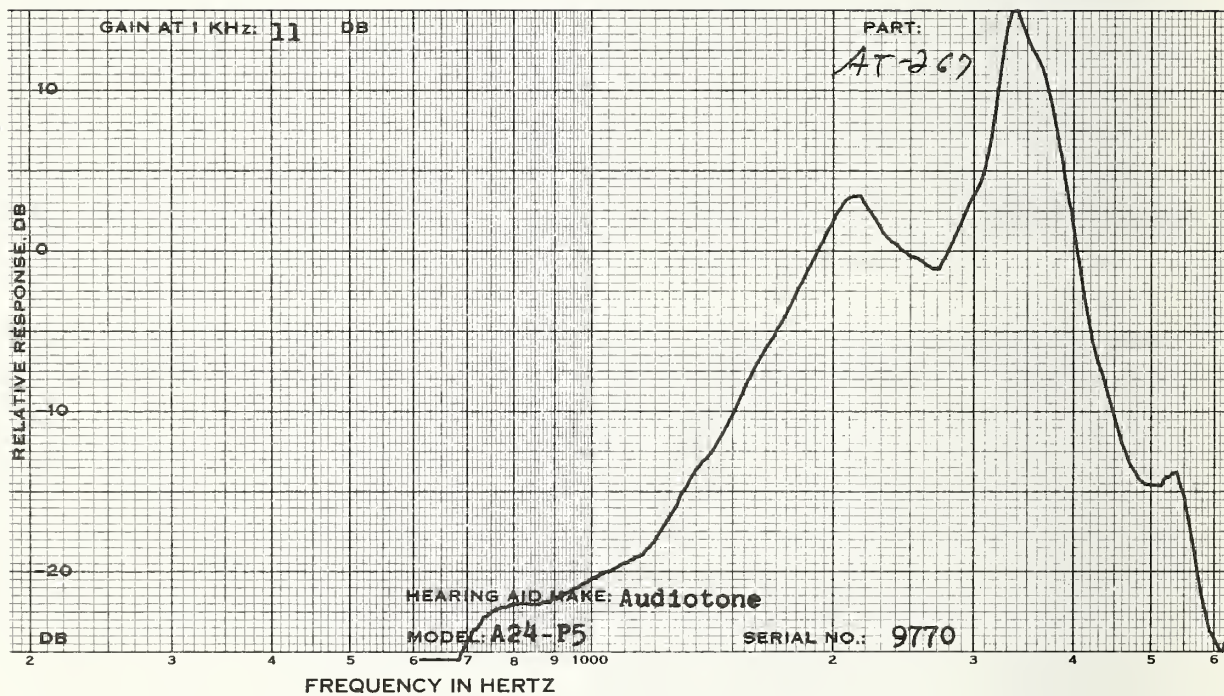
1KHZ GAIN DB	13.0	11.0	11.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	90.0	90.0	90.0
OUTPUT LEVEL DB	114.0	114.0	114.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	13.0(FULL)	11.0(FULL)	11.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	69.0 79.0	70.0 80.0	71.0 81.0
1000 HZ %	3 2	3 2	3 4
1500 HZ %	2 1	1 1	1 2
2000 HZ %	1 1	0 1	0 1
MAX DIST %	8 10	9 10	11 16
FREQ OF MAX DIS	1100 1100	1090 1110	1080 1090
S/N RATIO DB			
1KHZ SIGNAL	21.5	21.5	23.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.4	1.3	1.3
65 DB INPUT	1.4	1.3	1.3
BATTERY VOLTAGE	1.57	1.58	1.58
S/N 2KHZ	43.5	43.5	46.0









AUDIOTONE  
 MODEL:A25 TONE:NONE TUBING:7/8 BATTERY:S76 OE

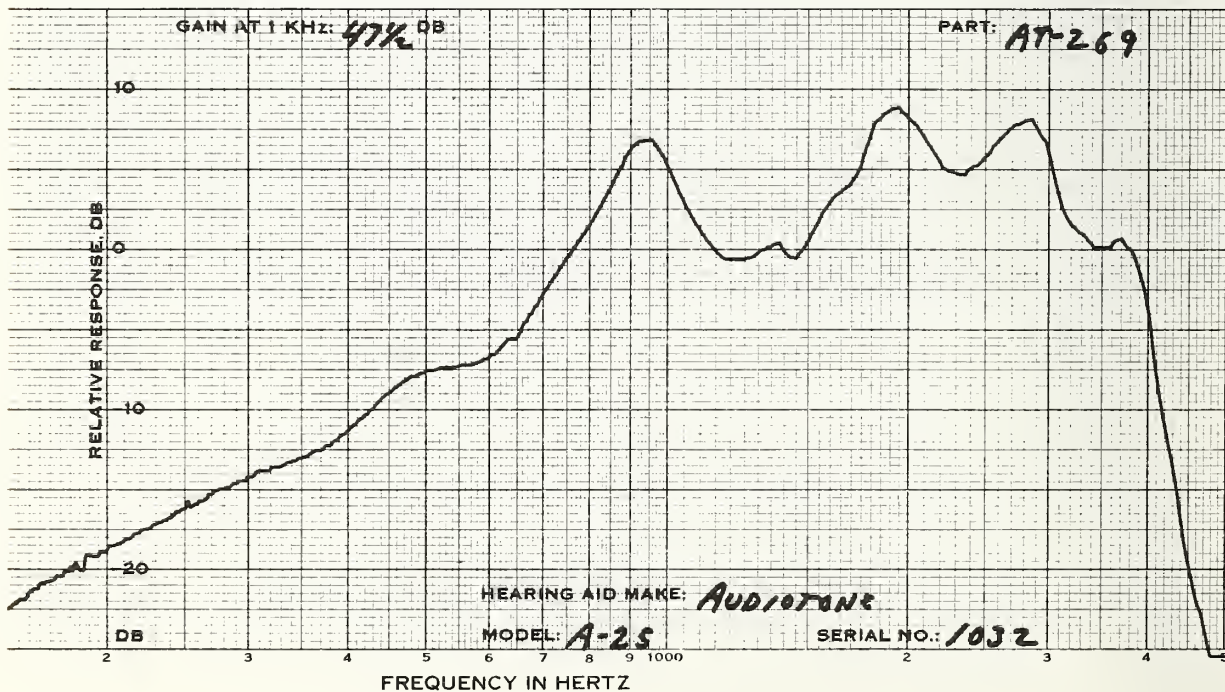
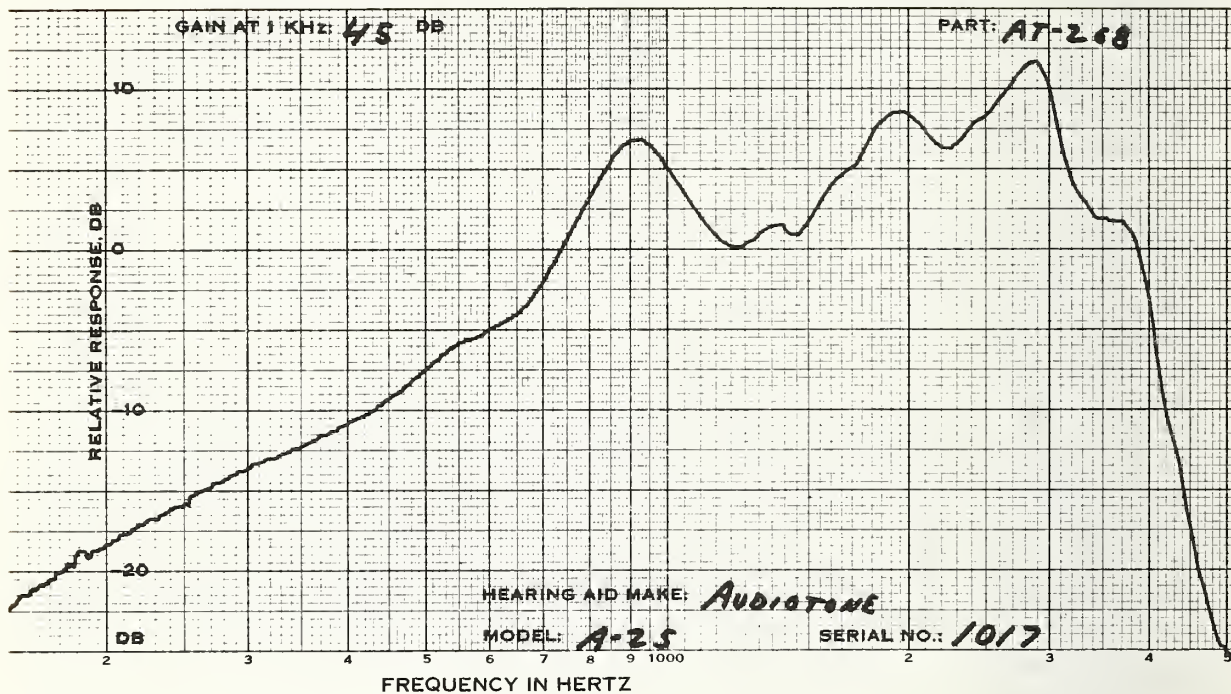
CODE	AT-268	AT-269	AT-270
SERIAL #	1017	1032	1042
DATE		APR 10, 1974	

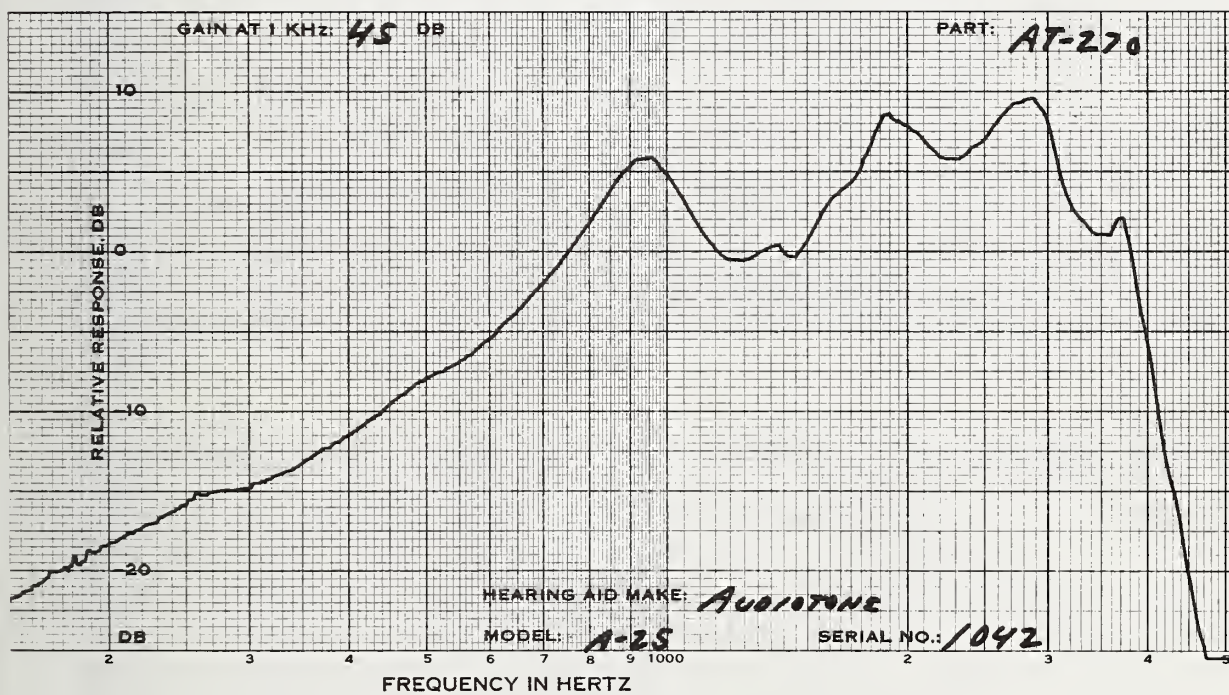
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	45.0	48.5	45.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.0	74.0	77.0
OUTPUT LEVEL DB	117.5	118.0	117.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	45.0(FULL)	47.5	45.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	61.0 71.0	60.0 70.0	62.5 72.5
500 HZ %	3 2	3 4	2 2
700 HZ %	1 2	1 2	1 1
900 HZ %	1 1	1 2	1 1
MAX DIST %	3 11	3 11	2 23
FREQ OF MAX DIS	500 1810	500 1770	500 1800
S/N RATIO DB			
1KHZ SIGNAL	43.0	44.0	43.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.7	1.7	1.7
65 DB INPUT	1.7	1.7	1.7
BATTERY VOLTAGE	1.58	1.58	1.58





## AUDIOTONE

MODEL:A26

TONE:NONE

TUBING:7/8

H DIR OE  
BATTERY:S13

CODE

SERIAL #

DATE

AT-271

1036

AT-272

1041

APR 8, 1974

AT-273

1055

MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB

40.0

43.5

39.5

MPO, RANDOM NOISE

INPUT LEVEL, DB

76.0

76.5

77.0

OUTPUT LEVEL DB

113.0

113.5

113.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB

40.0(FULL)

43.5(FULL)

39.5(FULL)

HARMONIC DIST

@INPUT LEVEL DB

60.0 70.0

60.0 70.0

60.0 70.0

1000 HZ %

1 3

1 4

1 0

1500 HZ %

1 6

2 10

1 8

2000 HZ %

2 9

2 10

2 9

MAX DIST %

3 11

5 18

3 16

FREQ OF MAX DIS

1950 1970

1830 1940

1930 1910

S/N RATIO DB

1KHZ SIGNAL

40.0

45.0

40.0

S/HUM RATIO DB

1KHZ SIGNAL

N.M.

N.M.

N.M.

BATTERY DRAIN, MA

NO INPUT

.7

.7

.7

65 DB INPUT

.7

.7

.7

BATTERY VOLTAGE

1.58

1.58

1.58

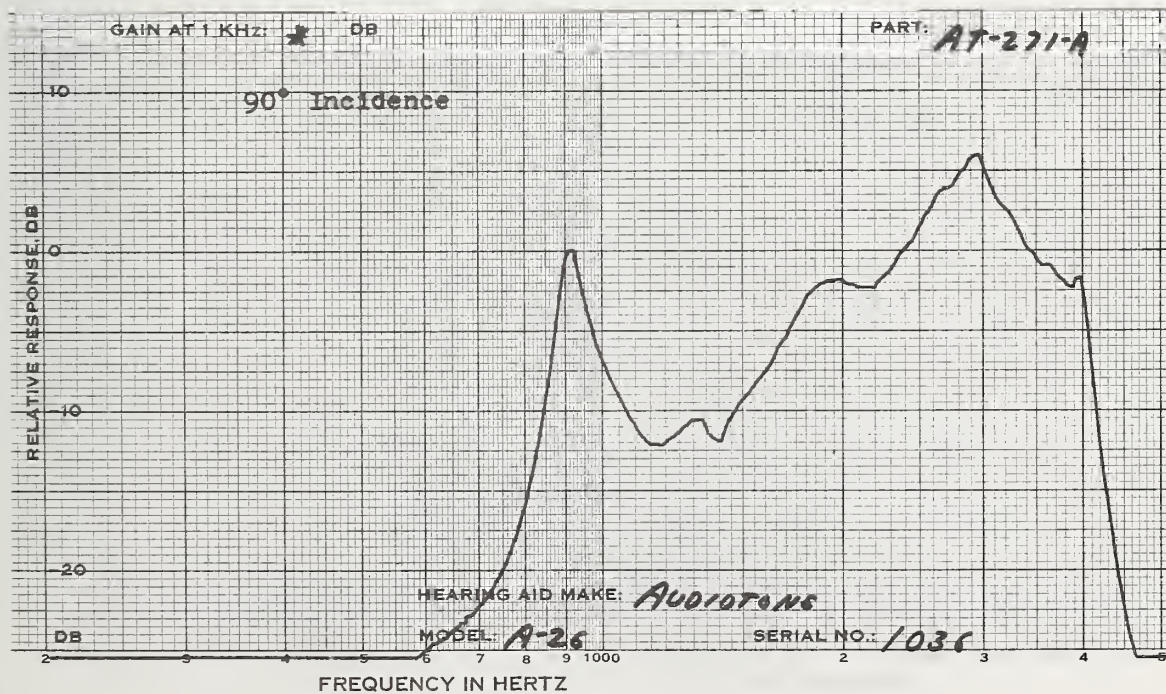
S/N 2KHZ

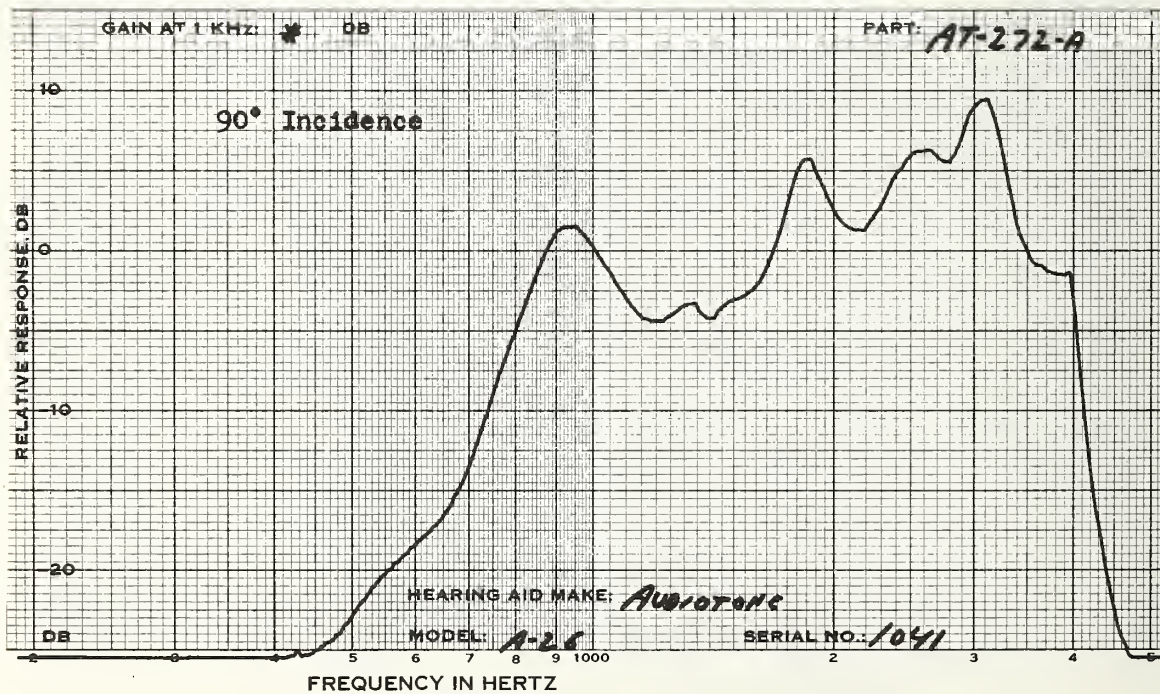
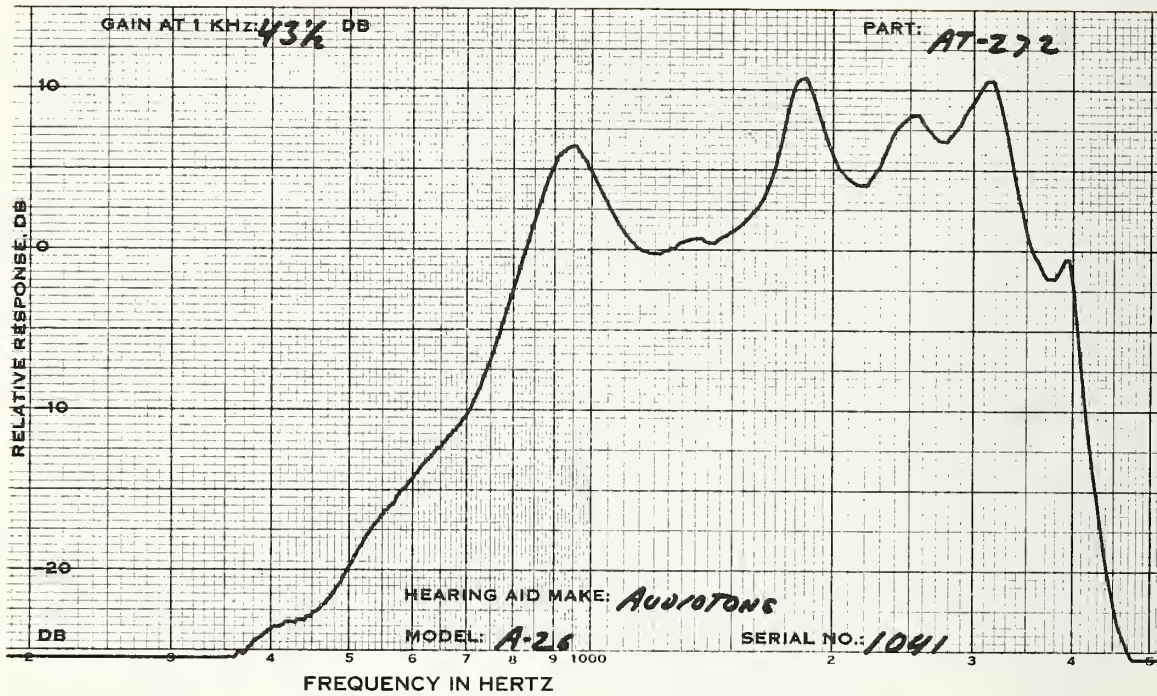
44.0

45.5

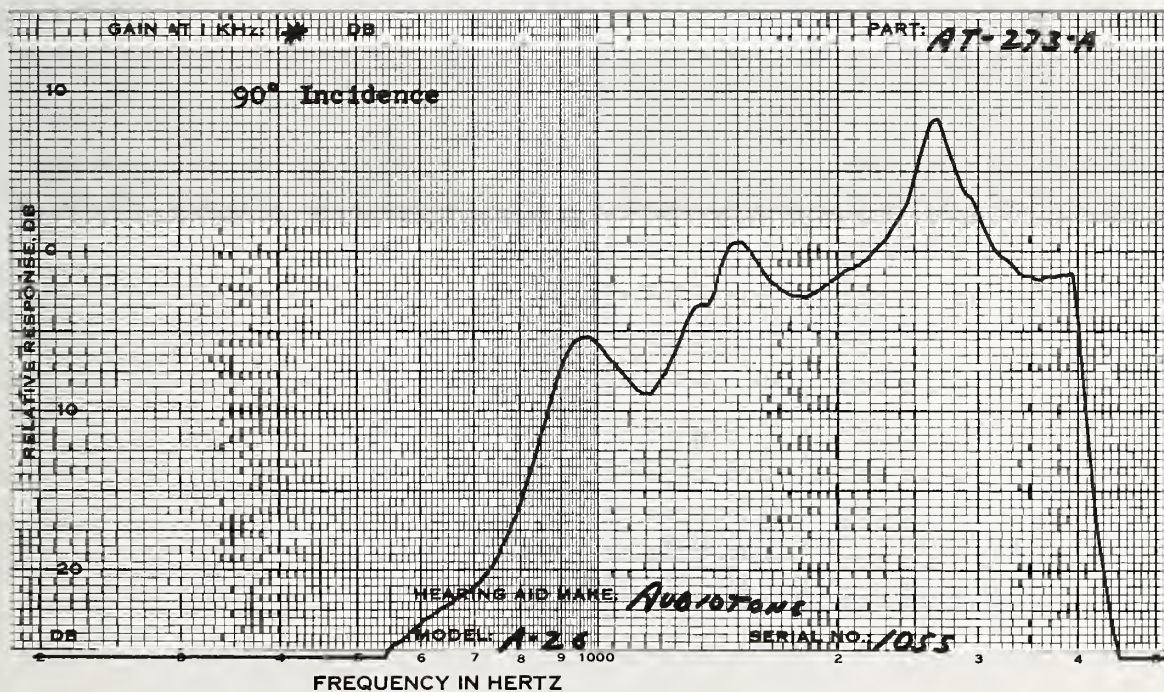
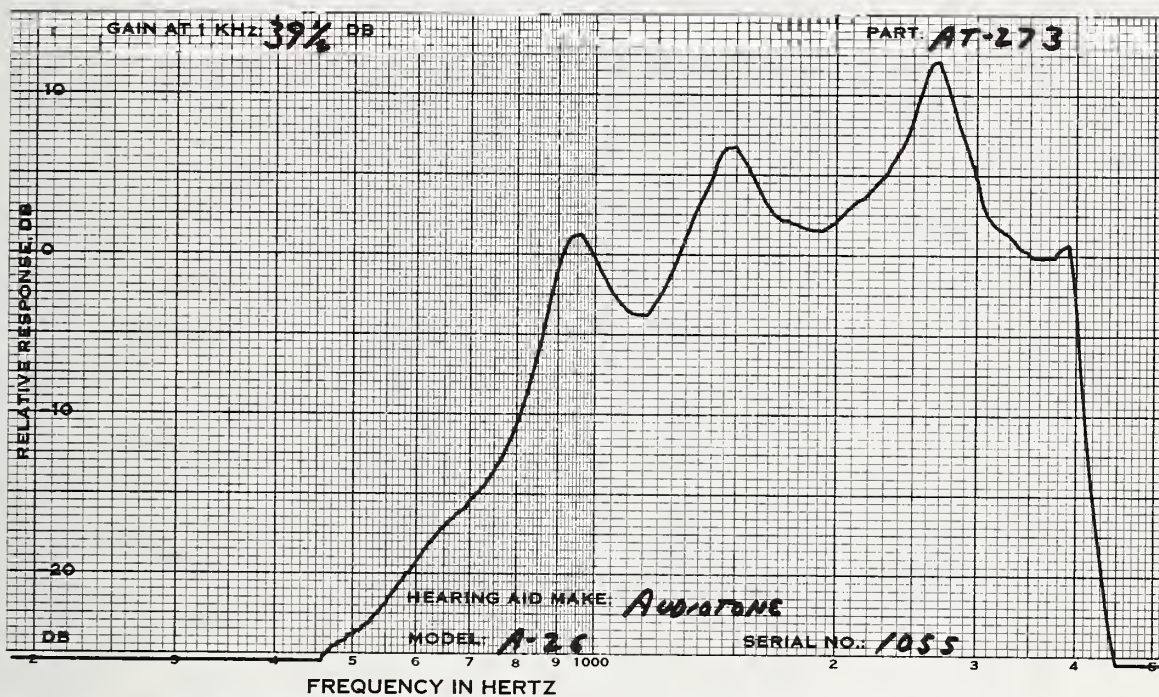
43.0











AUDIVOX

MODEL:101 DBL GR DOT TONE:NONE TUBING:1'' HP OE BATTERY:S41

CODE	AU-253	AU-254	AU-255
SERIAL #	51683	51750	51754
DATE		MAR 29, 1974	

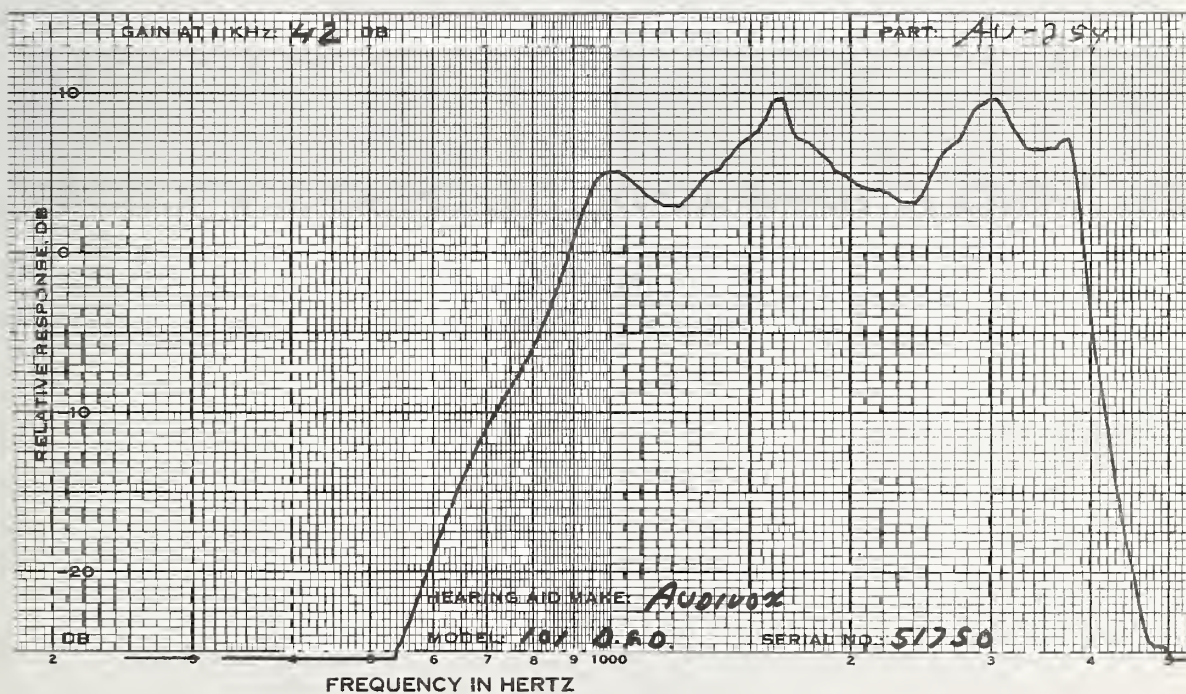
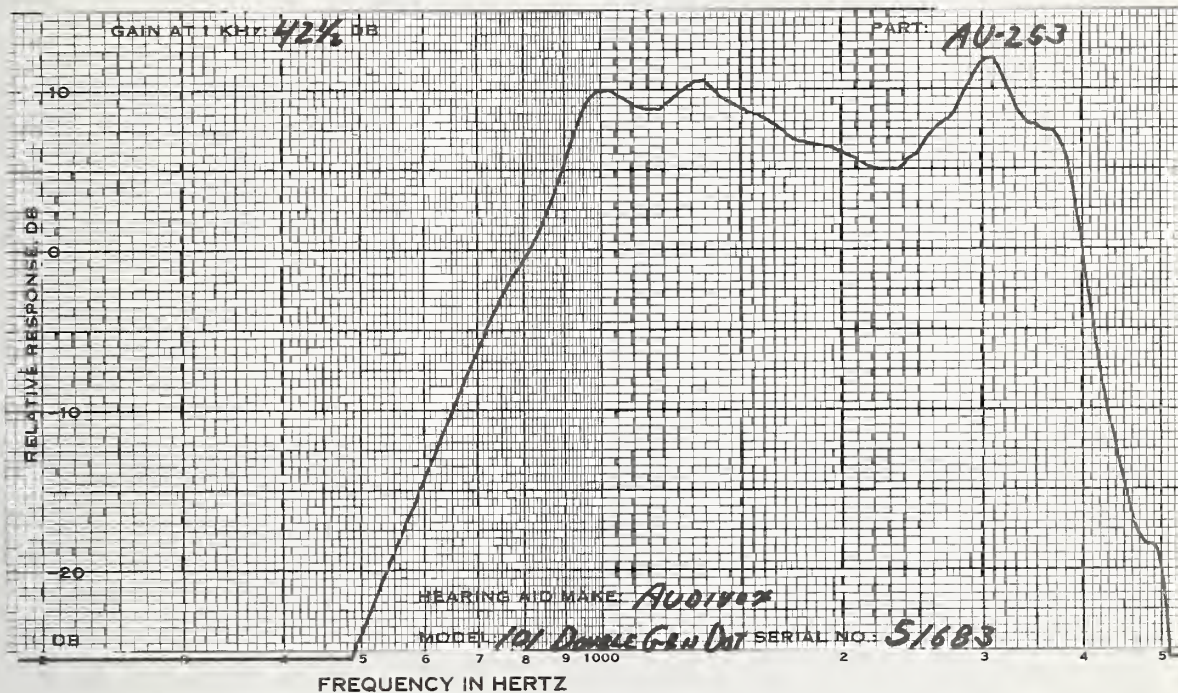
MEASUREMENTS WITH  
FULL VOL CONTROL

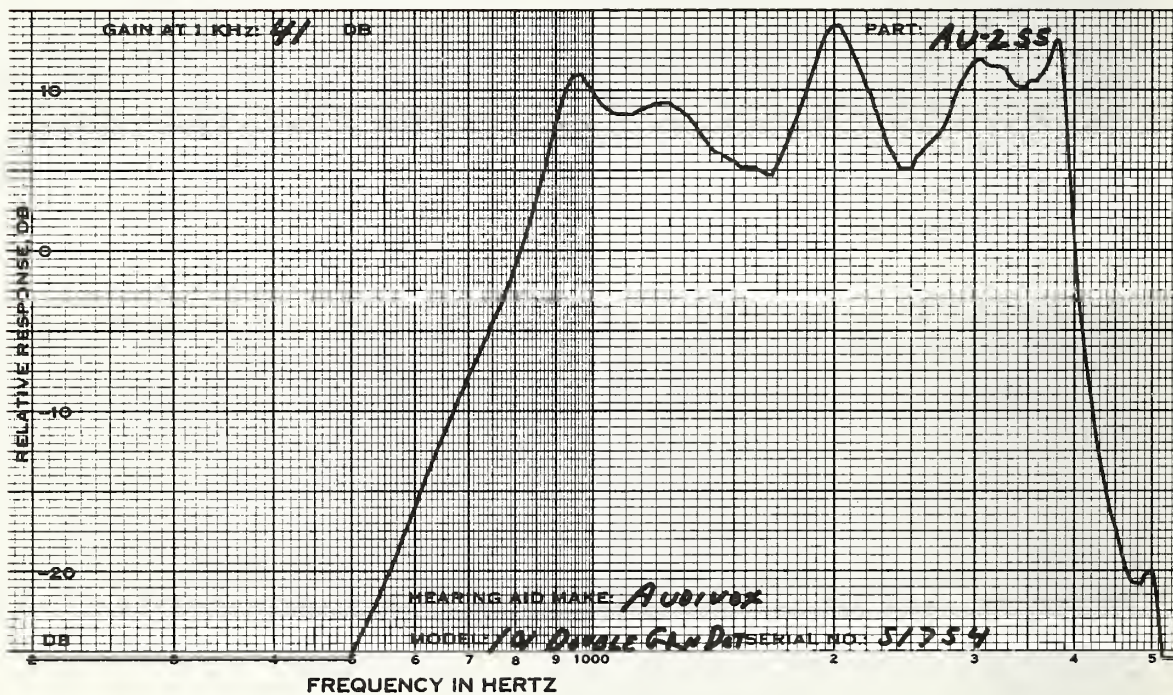
1KHZ GAIN DB	42.5	42.0	41.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	85.0	78.0
OUTPUT LEVEL DB	115.0	116.0	114.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	42.5(FULL)	42.0(FULL)	41.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	65.0 75.0	64.0 74.0	63.0 73.0
1000 HZ %	0 1	1 2	1 1
1500 HZ %	2 27	4 45	1 2
2000 HZ %	0 0	1 2	1 2
MAX DIST %	2 27	5 47	1 15
FREQ OF MAX DIS	1500 1500	1570 1470	1880 1840
S/N RATIO DB			
1KHZ SIGNAL	50.0	49.5	49.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	.9	.9
65 DB INPUT	.9	.9	.9
BATTERY VOLTAGE	1.57	1.59	1.58
S/N 2KHZ	45.5	49.0	54.0









AUDIVOX  
MODEL:101 BD TONE:NONE TUBING:1'' BATTERY:S41 OE

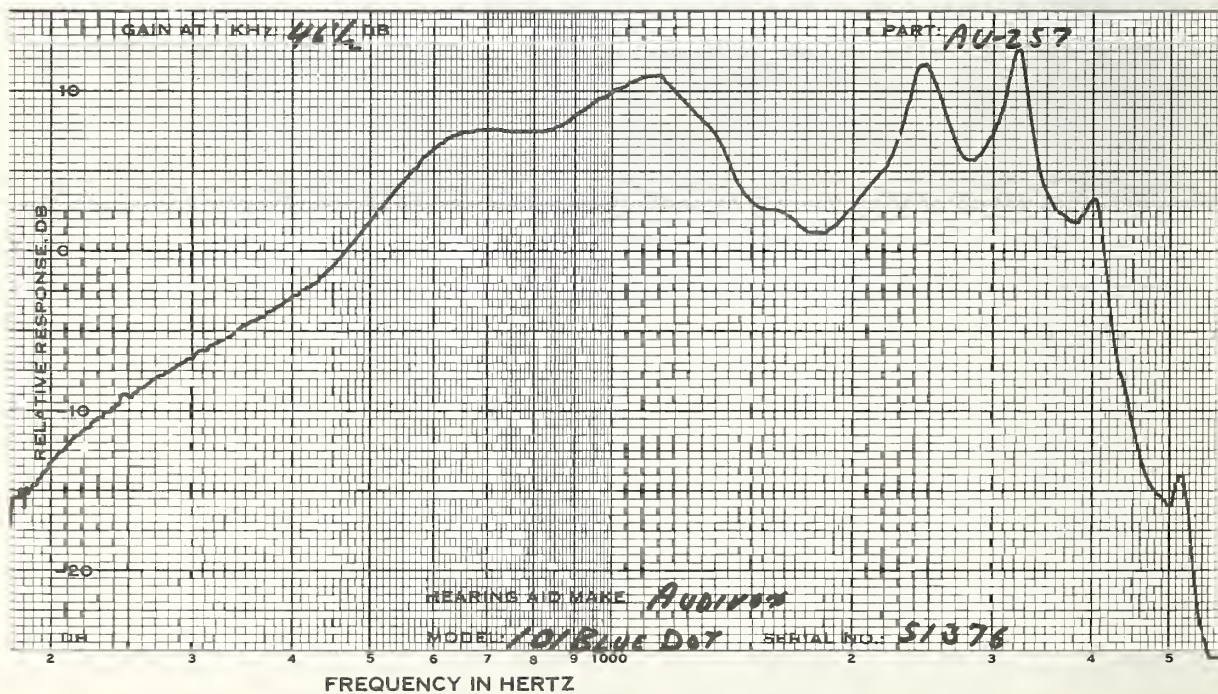
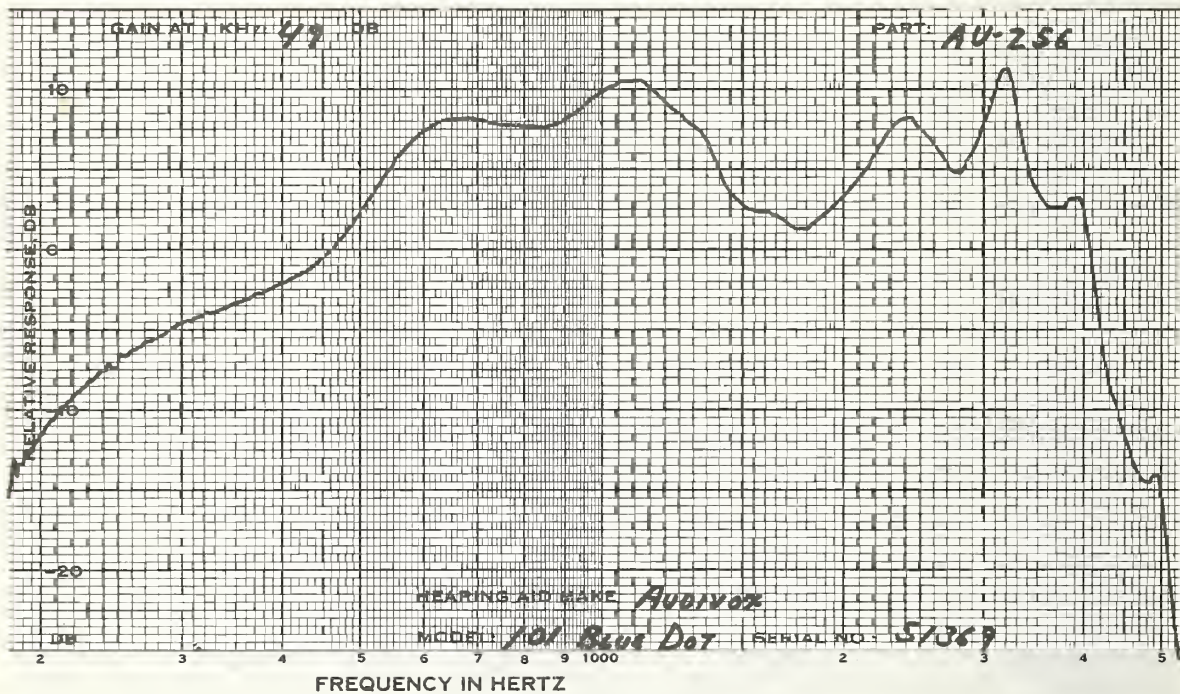
CODE	AU-256	AU-257	AU-258
SERIAL #	51369	51376	51395
DATE		MAR 28, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

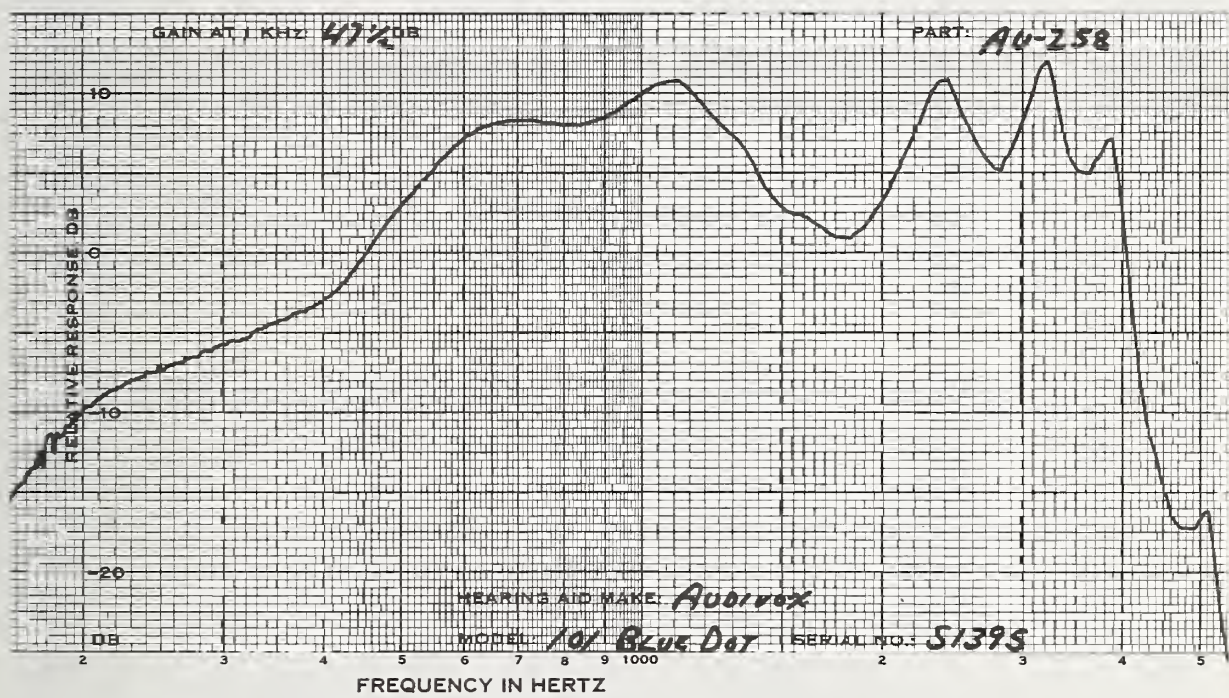
1KHZ GAIN DB	49.0	46.5	47.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	79.0	80.0	78.0
OUTPUT LEVEL DB	117.0	116.5	117.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	49.0(FULL)	46.5(FULL)	47.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	62.0 72.0	61.5 71.5
500 HZ %	4 11	4 9	4 8
700 HZ %	1 3	1 3	1 2
900 HZ %	1 1	1 1	1 1
MAX DIST %	5 11	5 13	4 8
FREQ OF MAX DIS	500 1560	1570 1570	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.5	43.5	43.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.1	1.0
65 DB INPUT	1.0	1.1	1.0
BATTERY VOLTAGE	1.58	1.57	1.58







AUDIVOX

MODEL:111 RD TONE:NONE TUBING:1 11/16 BATTERY:S76

EG

CODE	AU-259	AU-260	AU-261
SERIAL #	45449	45473	48414
DATE		MAR 27, 1974	

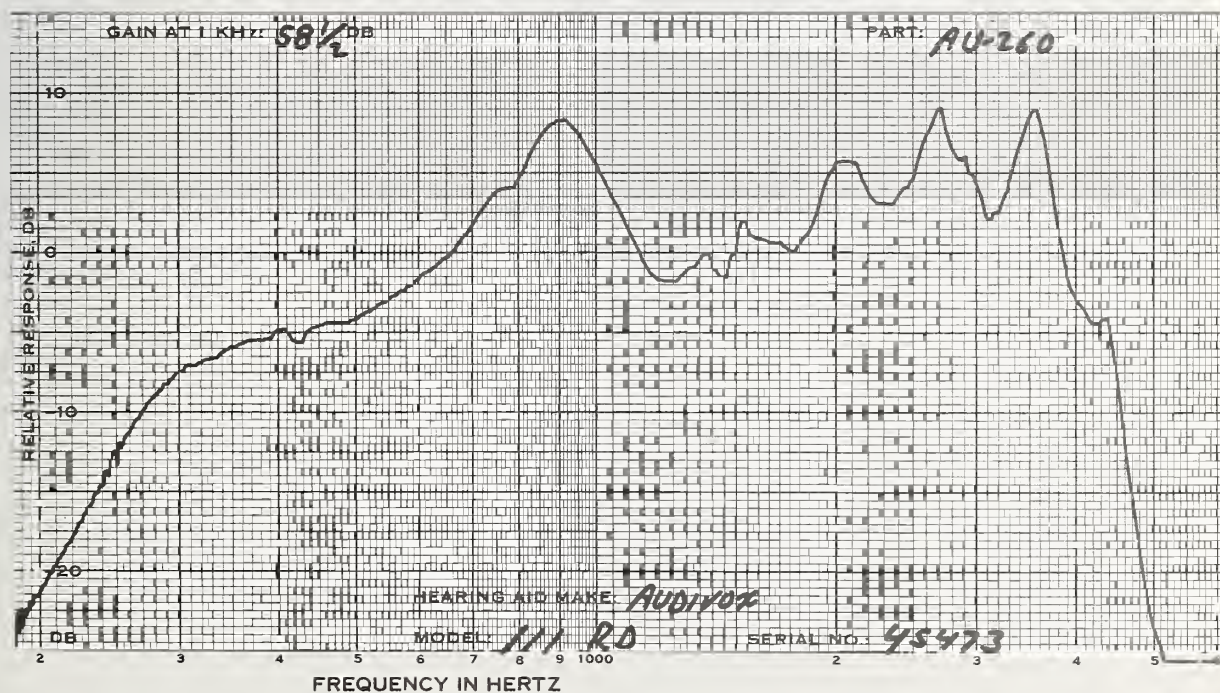
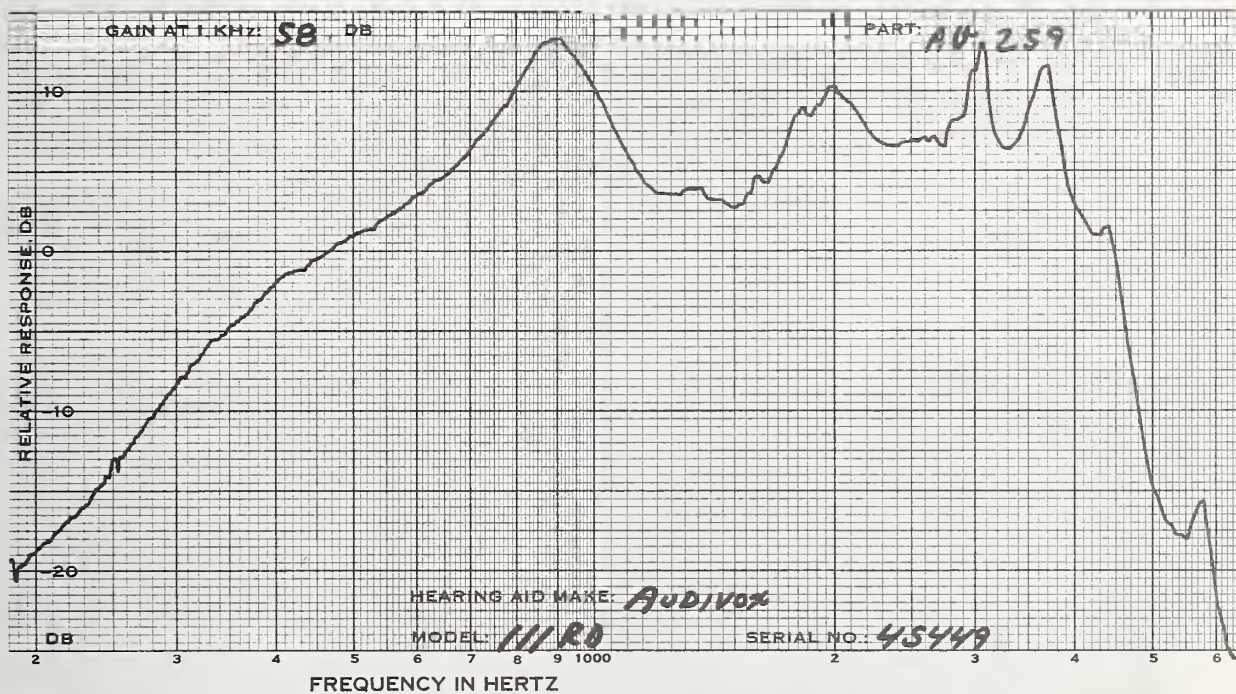
MEASUREMENTS WITH  
FULL VOL CONTROL

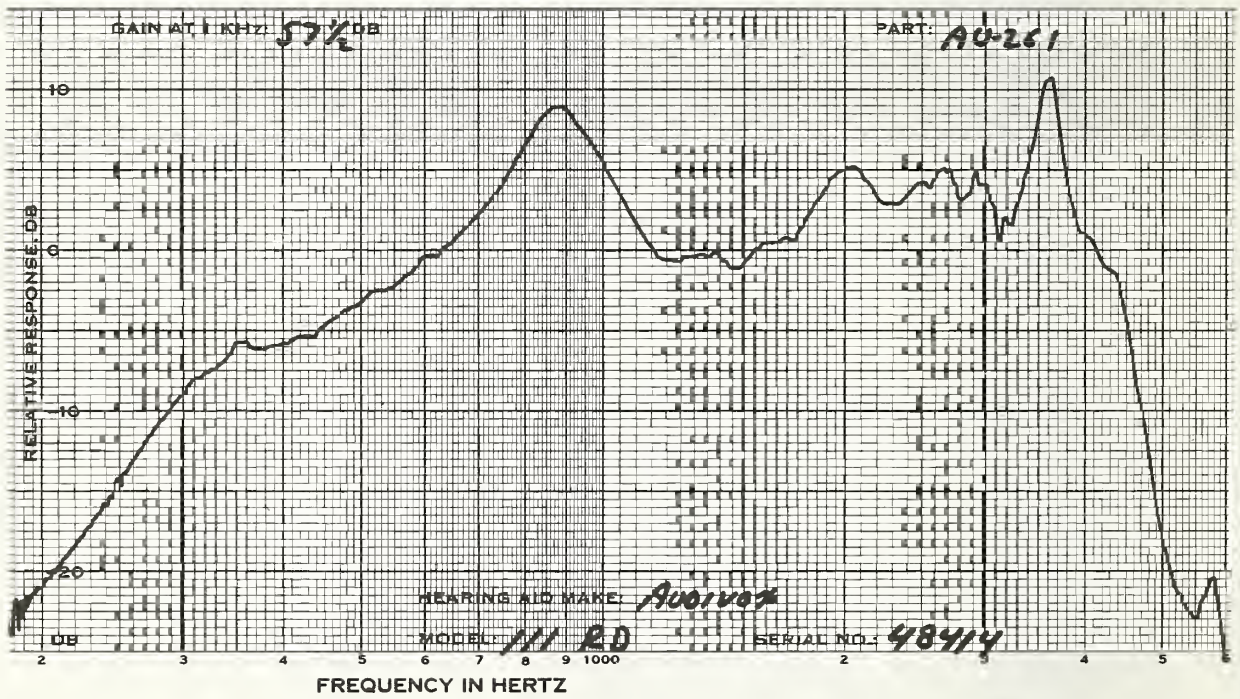
1KHZ GAIN DB	61.0	61.5	61.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.0	77.0	77.0
OUTPUT LEVEL DB	127.5	128.0	128.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	58.0	58.5	57.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 4	5 6	3 4
700 HZ %	1 2	2 1	1 1
900 HZ %	0 2	1 4	0 1
MAX DIST %	2 4	5 6	3 4
FREQ OF MAX DIS	650 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	43.5	47.0	44.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	.9	.7
65 DB INPUT	2.0	2.0	1.9
BATTERY VOLTAGE	1.56	1.56	1.57









AUDIVOX HP EG  
 MODEL:112 RIVIERA TONE:NONE TUBING:1 11/16 BATTERY:675

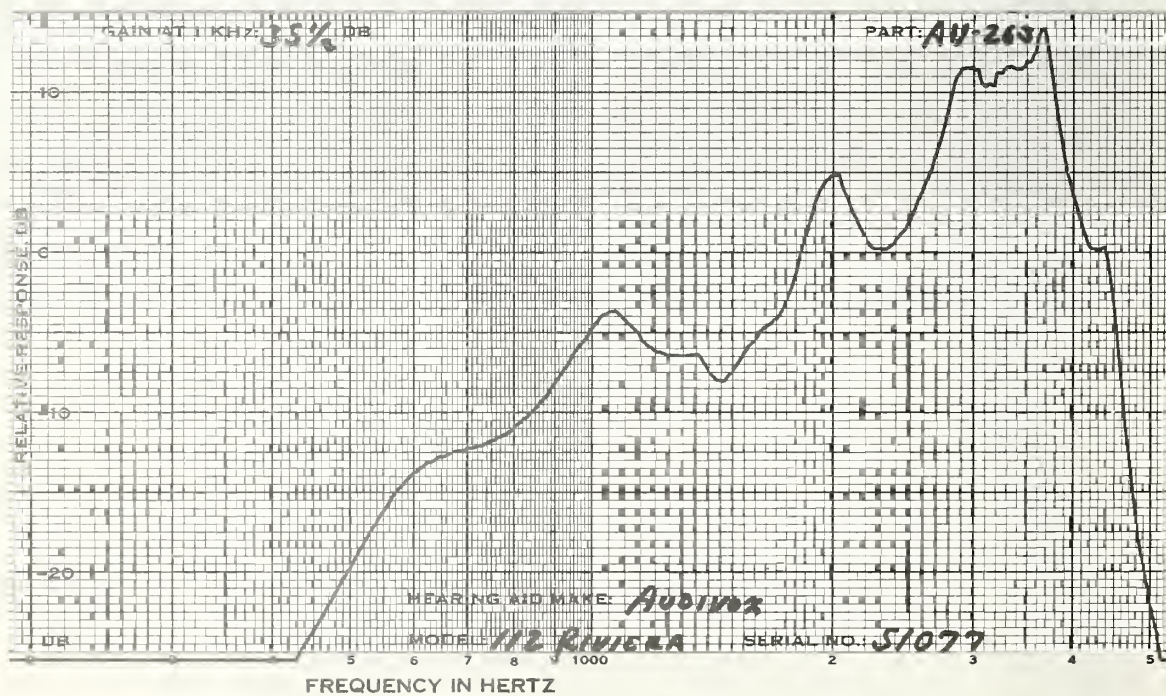
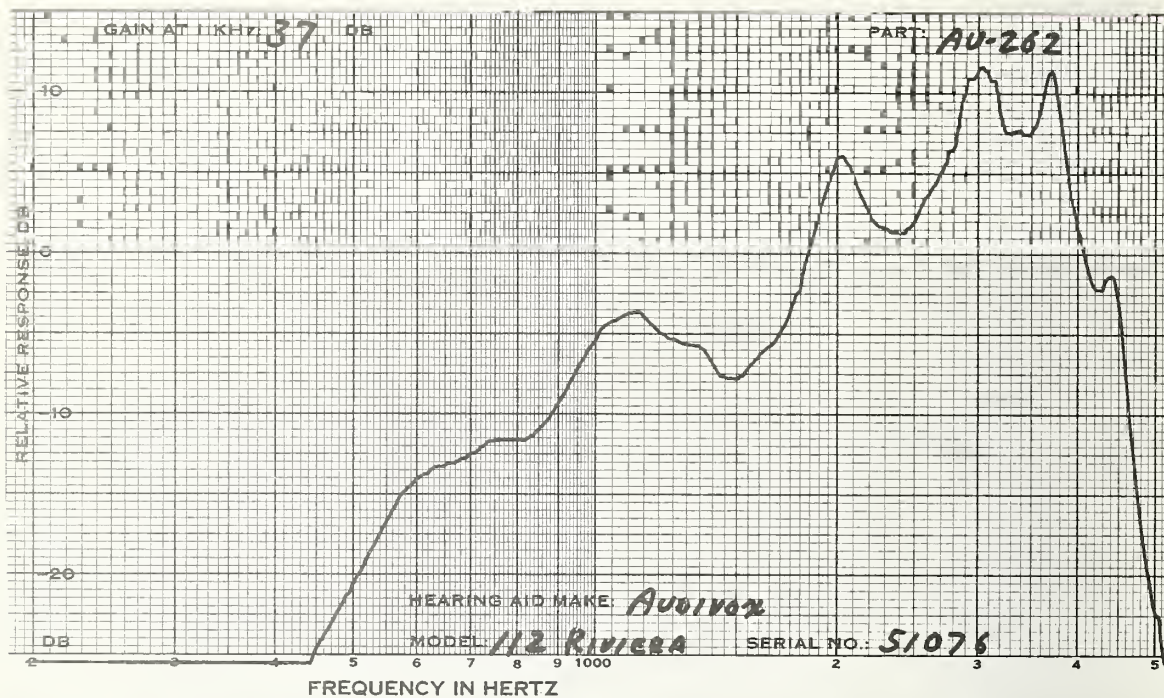
CODE	AU-262	AU-263	AU-264
SERIAL #	51076	51077	51085
DATE		MAR 27, 1974	

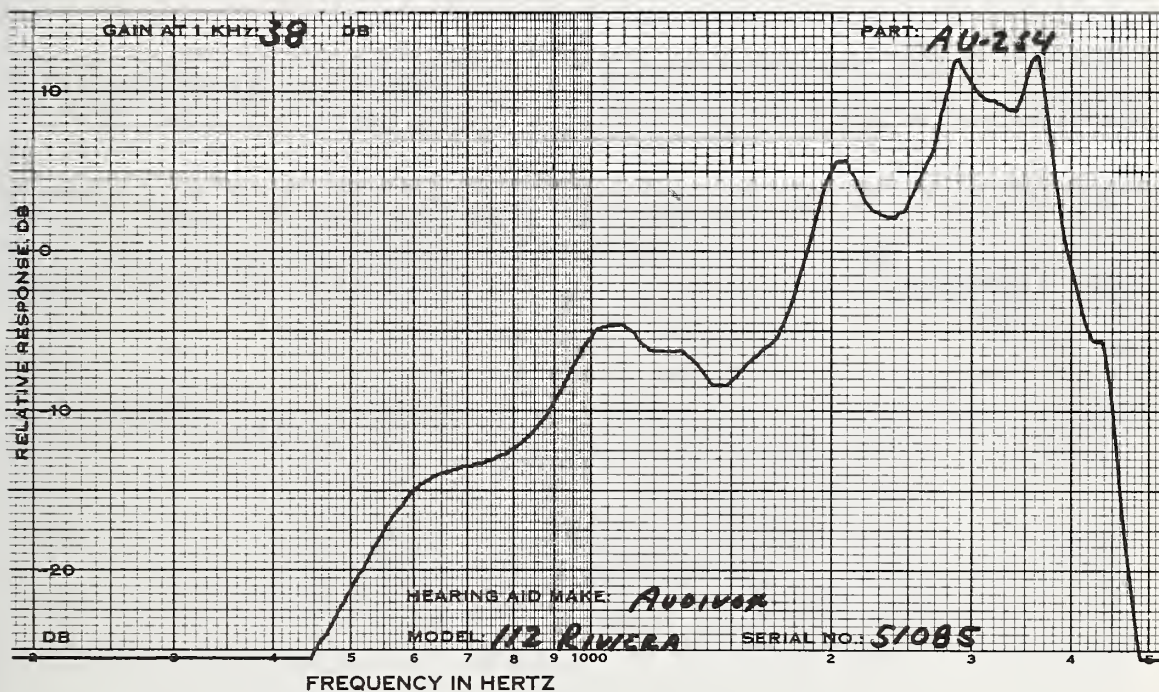
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	37.0	35.5	38.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	80.0	80.0
OUTPUT LEVEL DB	116.5	116.0	117.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	37.0(FULL)	35.5(FULL)	38.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	63.0 73.0	63.0 73.0	60.5 70.5
1000 HZ %	2 2	1 1	1 1
1500 HZ %	5 4	4 3	6 5
2000 HZ %	0 5	0 1	1 2
MAX DIST %	6 5	4 5	10 8
FREQ OF MAX DIS	1470 1970	1500 1810	1460 1780
S/N RATIO DB			
1KHZ SIGNAL	36.0	34.0	33.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.0	1.1
65 DB INPUT	1.0	1.0	1.1
BATTERY VOLTAGE	1.39	1.40	1.37
S/N 2KHZ	44.0	42.0	45.5







AUDIVOX

OB

MODEL:118 TONE:RED DOT RECEIVER:P2 BATTERY:401

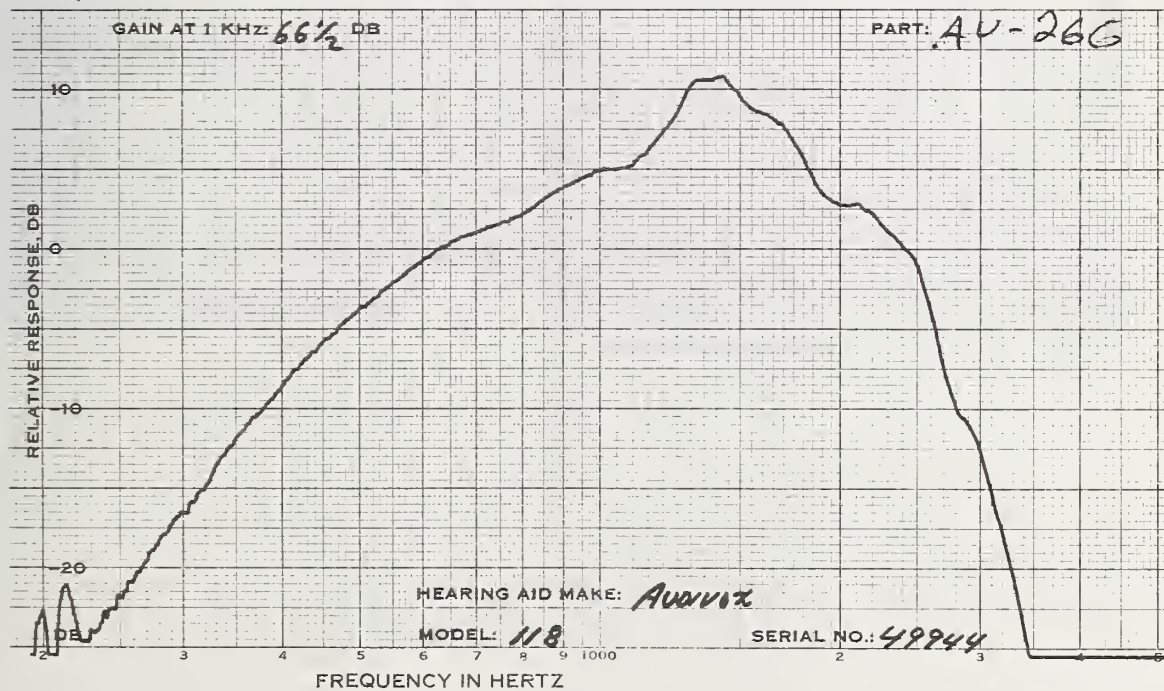
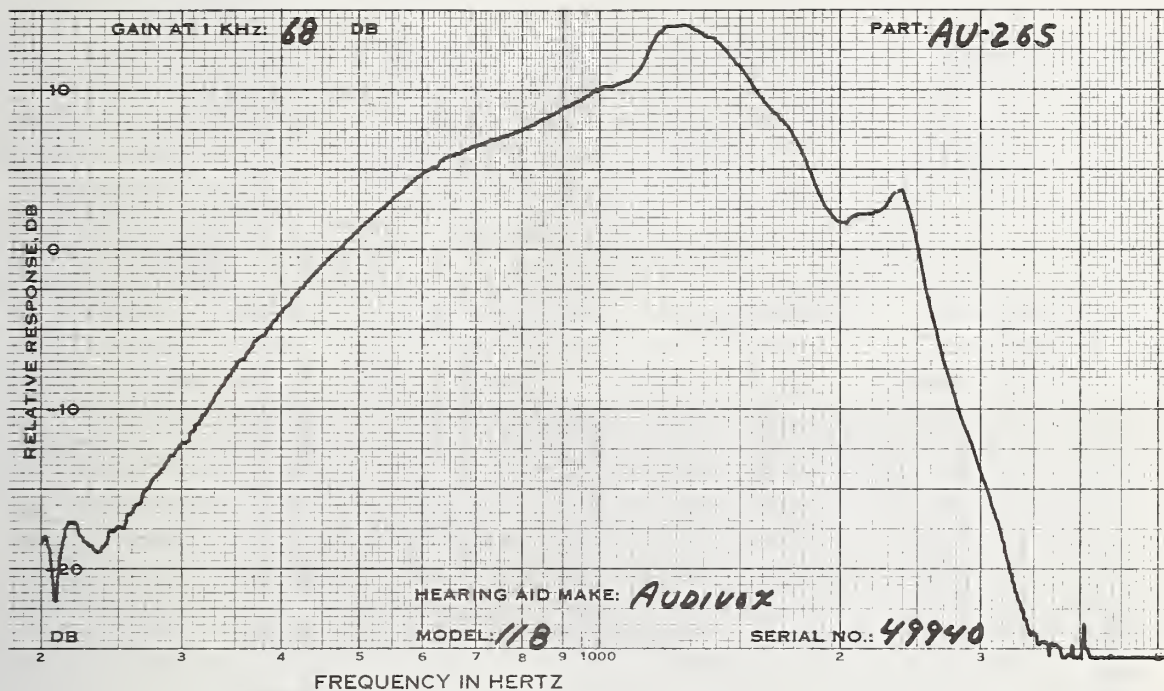
CODE	AU-265	AU-266	AU-267
SERIAL #	49940	49944	51861
DATE		MAR 11, 1974	

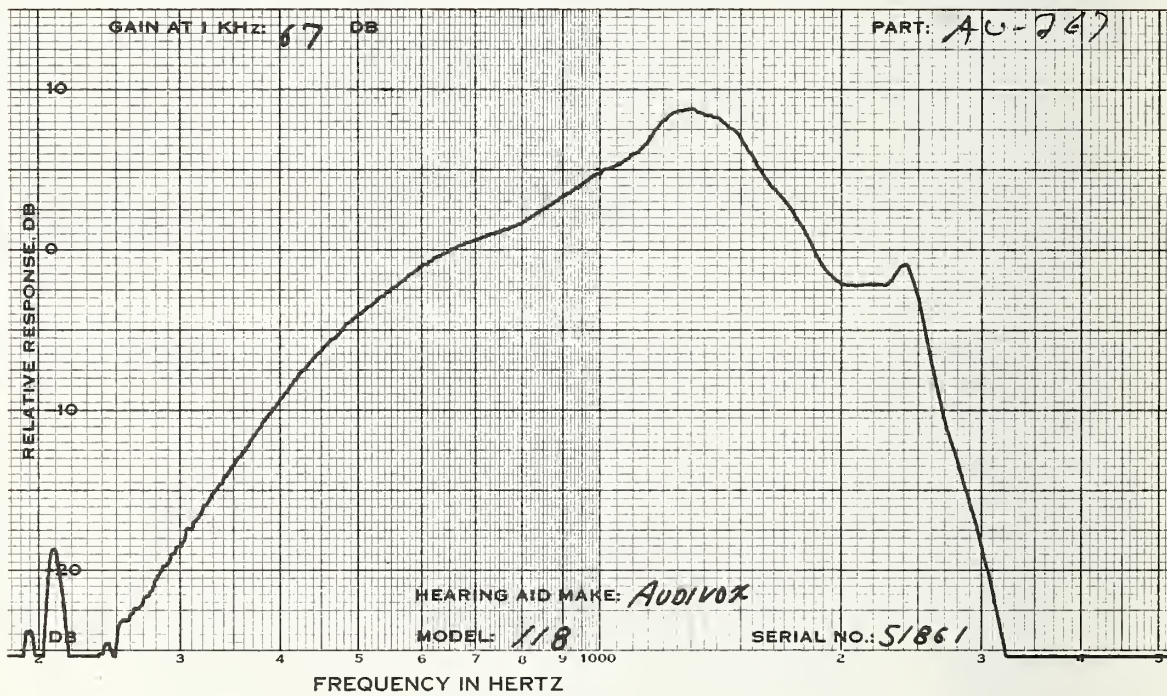
MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	79.0	78.0	79.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	67.0	69.0	68.0
OUTPUT LEVEL DB	135.5	134.5	135.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	68.0	66.5	67.0
HARMONIC DIST			
2INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 16	19 28	8 21
700 HZ %	2 8	12 26	4 10
900 HZ %	1 3	7 17	1 2
MAX DIST %	6 16	19 28	8 21
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.5	47.0	46.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	12.5	17.3	11.7
65 DB INPUT	13.5	17.2	12.4
BATTERY VOLTAGE	1.41	1.37	1.41







AUDIVOX  
 MODEL:120 RD DIR SW:DOWN(DIR) TUBING:1 DIR OE BATTERY:S41

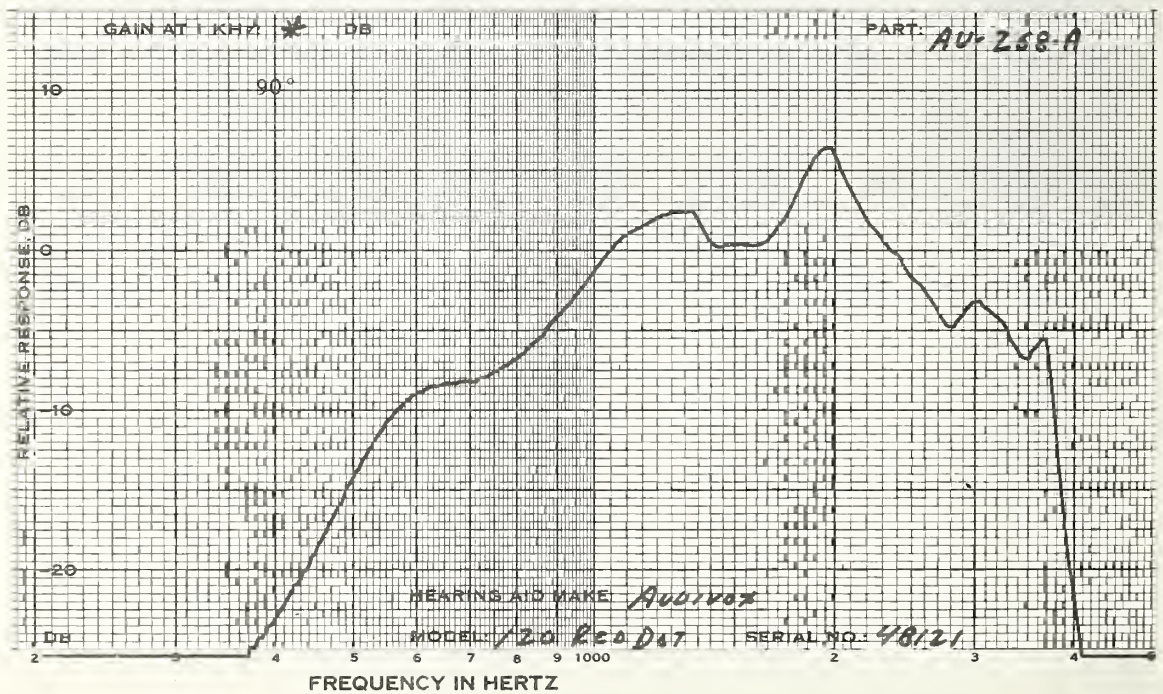
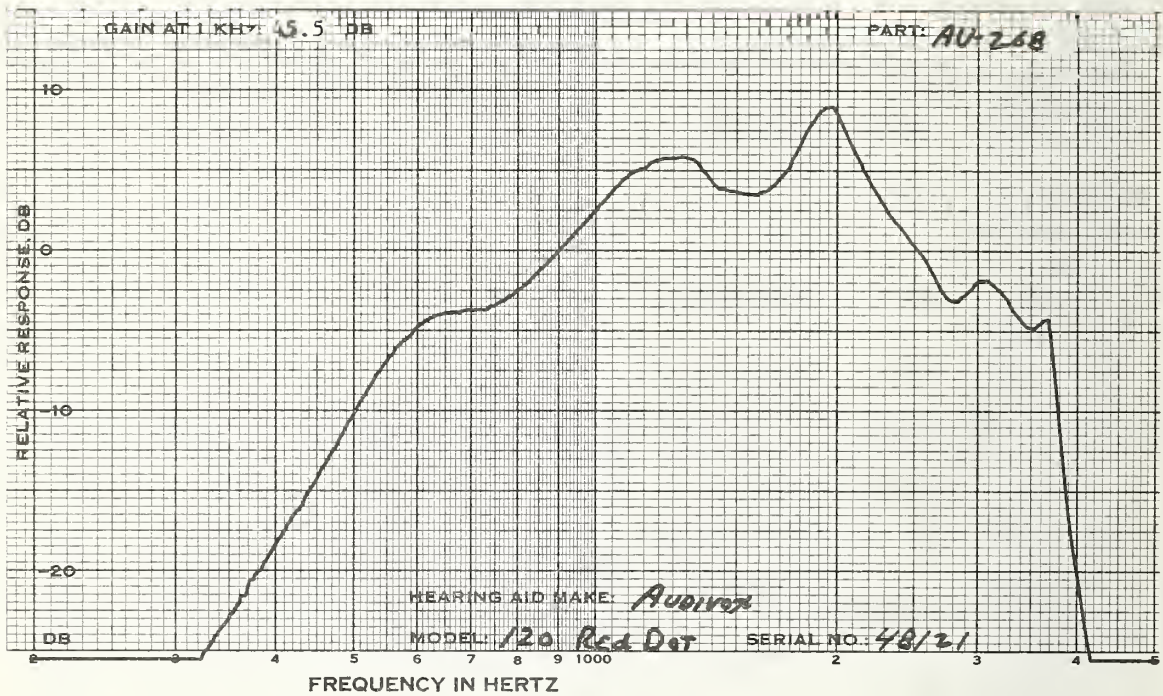
CODE	AU-268	AU-269	AU-270
SERIAL #	48121	48156	51680
DATE		MAY 13, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

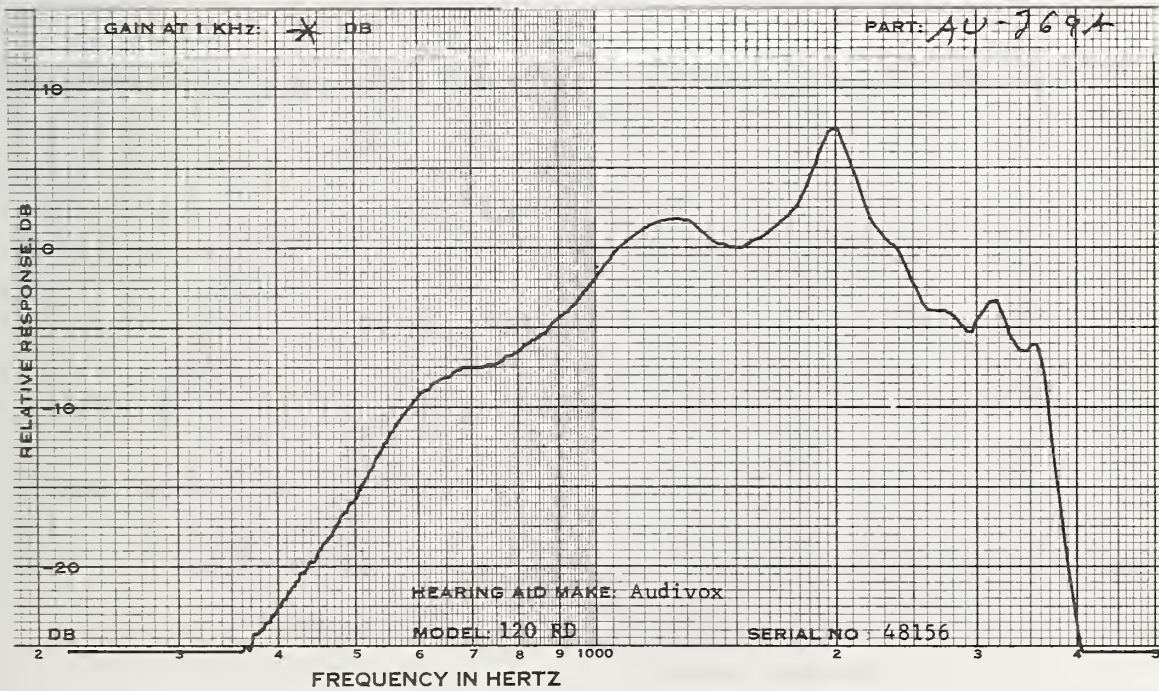
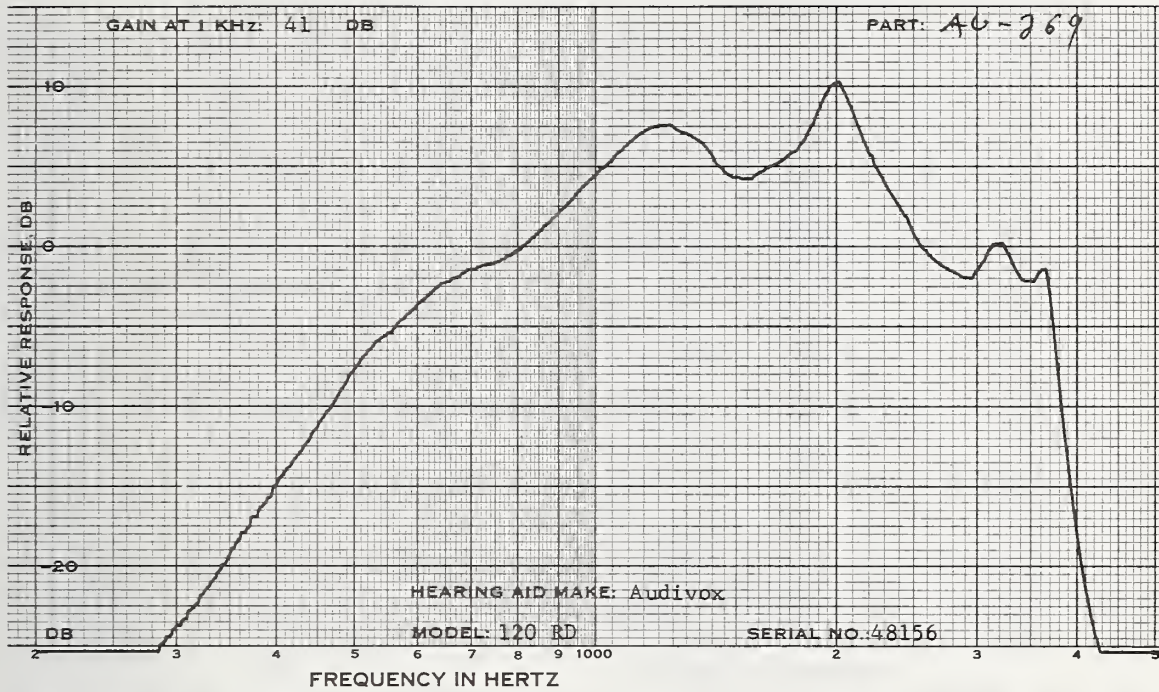
1KHZ GAIN DB	45.5	41.0	42.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.0	77.0	77.0
OUTPUT LEVEL DB	114.0	113.5	114.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

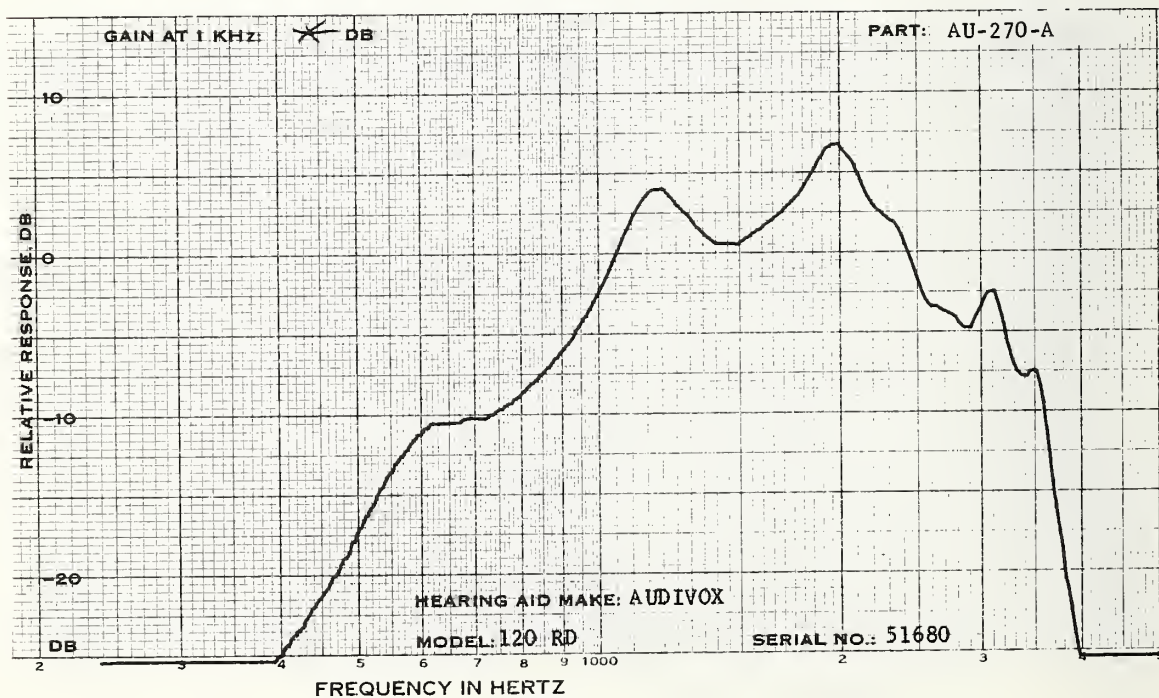
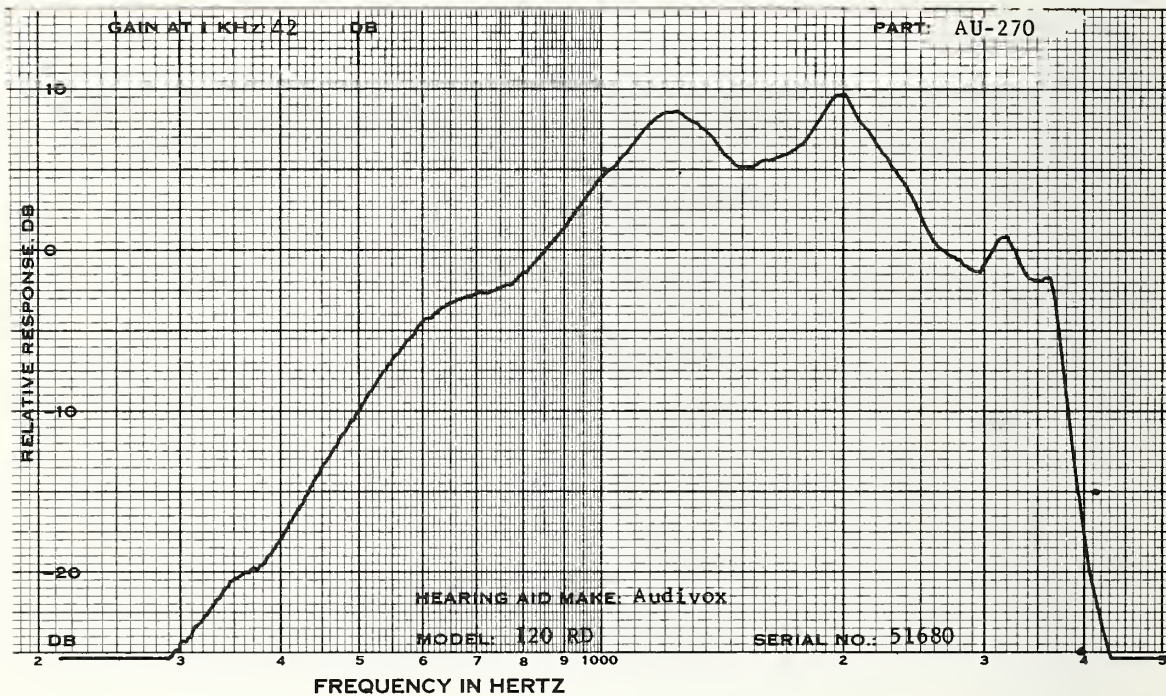
1KHZ GAIN DB	45.5(FULL)		41.0(FULL)		42.0(FULL)	
HARMONIC DIST						
INPUT LEVEL DB	61.0	71.0	62.5	72.5	62.0	72.0
500 HZ %	4	1	2	1	4	2
700 HZ %	1	0	0	0	1	1
900 HZ %	1	1	1	0	1	1
MAX DIST %	4	1	2	1	4	2
FREQ OF MAX DIS	500	900	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	49.5		46.0		45.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	1.2		1.1		1.2	
65 DB INPUT	1.2		1.1		1.2	
BATTERY VOLTAGE	1.58		1.58		1.58	











AUDIVOX DIR OE  
 MODEL:121 RD TONE:SW DOWN TUBING:1'' BATTERY:S76

CODE	AU-271	AU-272	AU-273
SERIAL #	52709	55707	55724
DATE		APR 19, 1974	

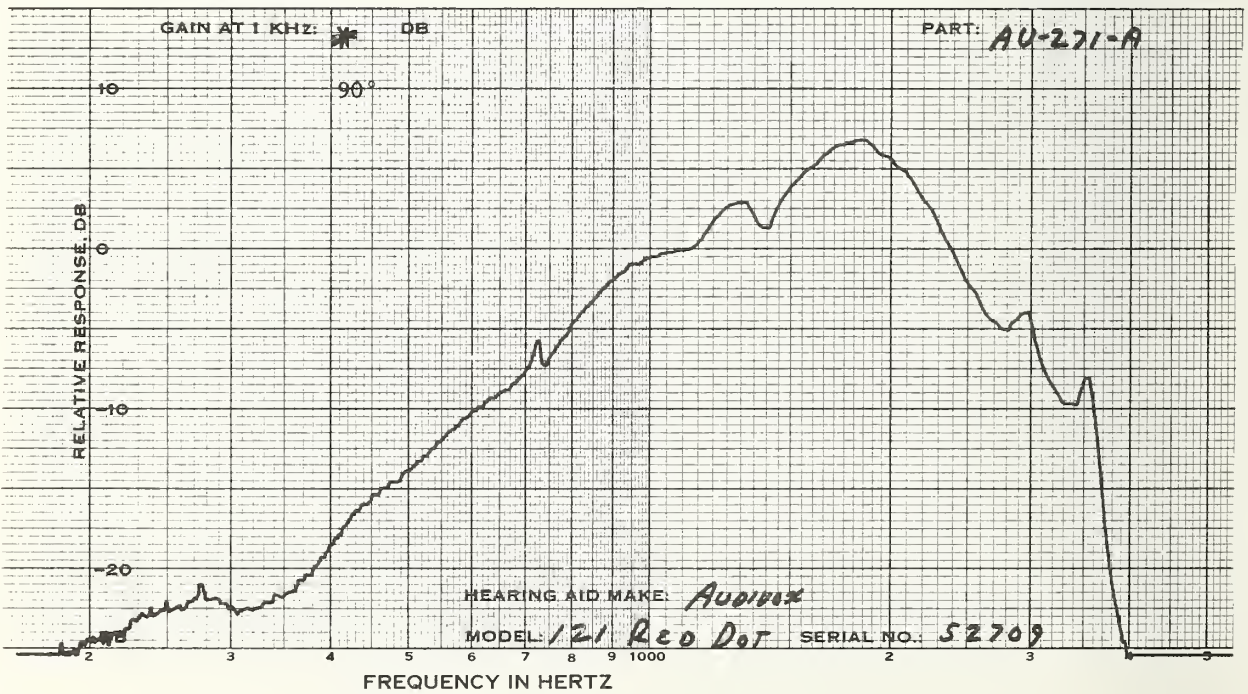
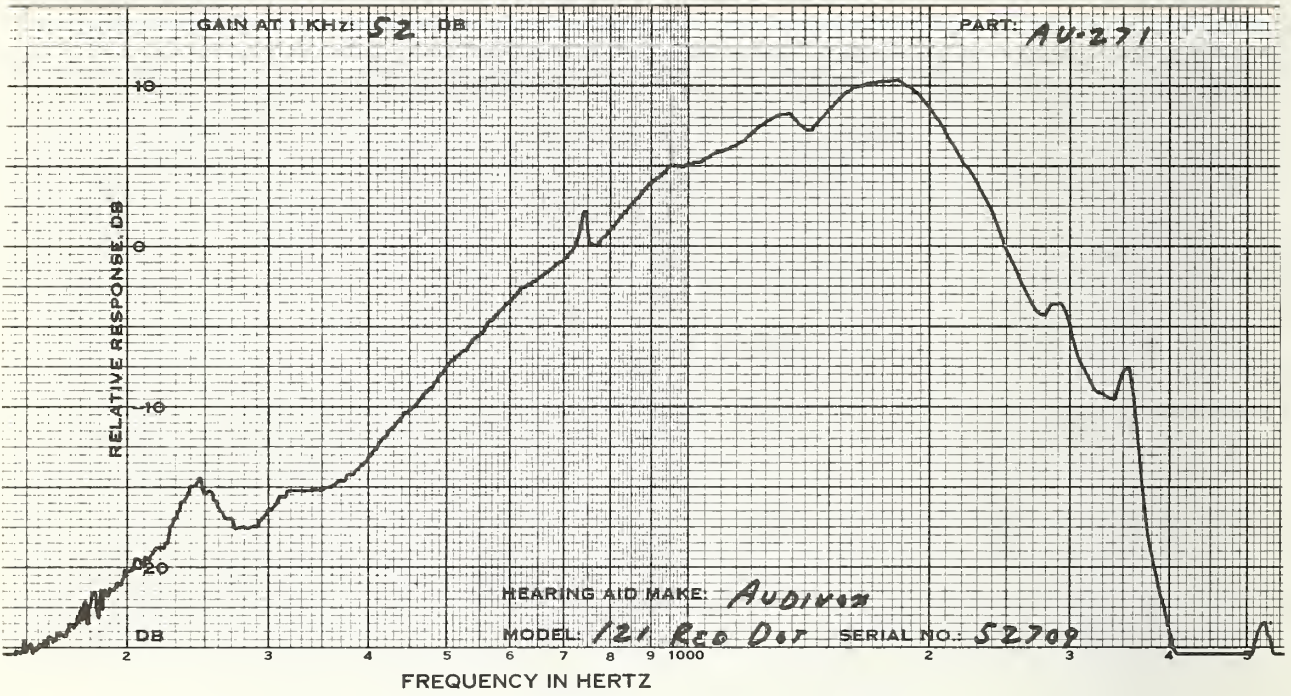
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	52.0	58.5	53.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.0	75.0	77.0
OUTPUT LEVEL DB	123.0	124.0	123.5

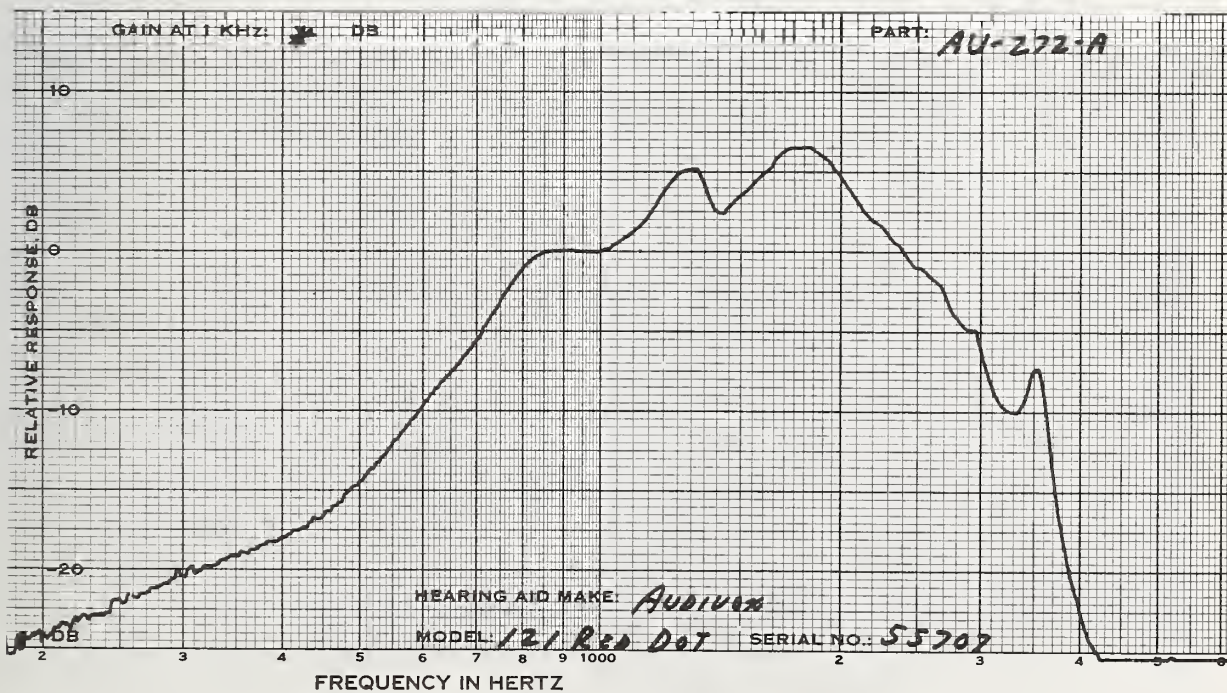
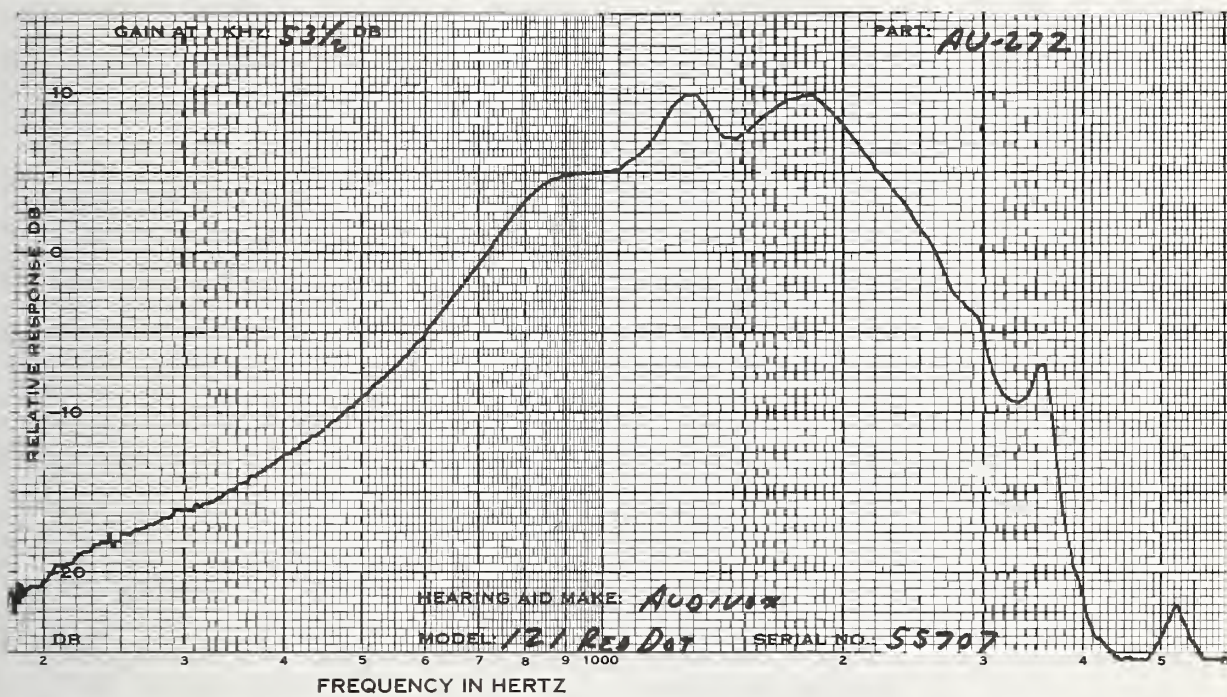
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	52.0 (FULL)	53.5	51.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 5	6 3	4 3
700 HZ %	3 3	2 1	1 2
900 HZ %	2 1	2 2	2 2
MAX DIST %	6 5	6 5	4 5
FREQ OF MAX DIS	500 500	500 1180	500 1750
S/N RATIO DB			
1KHZ SIGNAL	41.5	43.5	39.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	1.0	.7
65 DB INPUT	1.2	1.2	1.3
BATTERY VOLTAGE	1.58	1.58	1.58

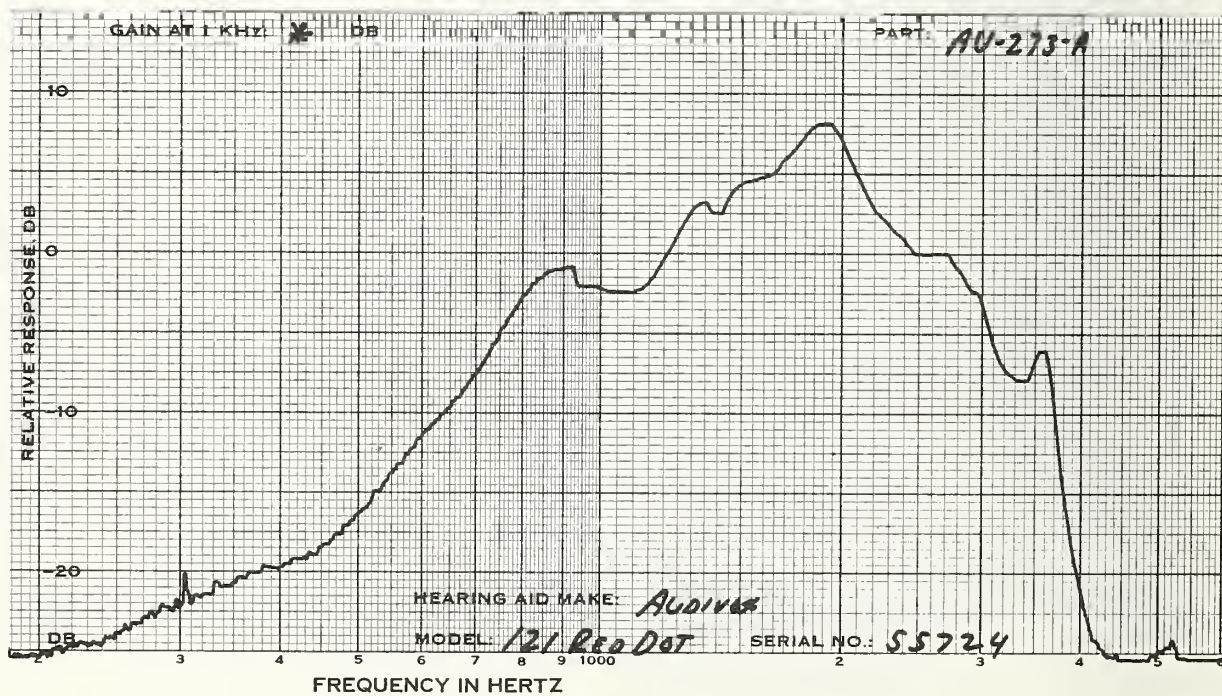
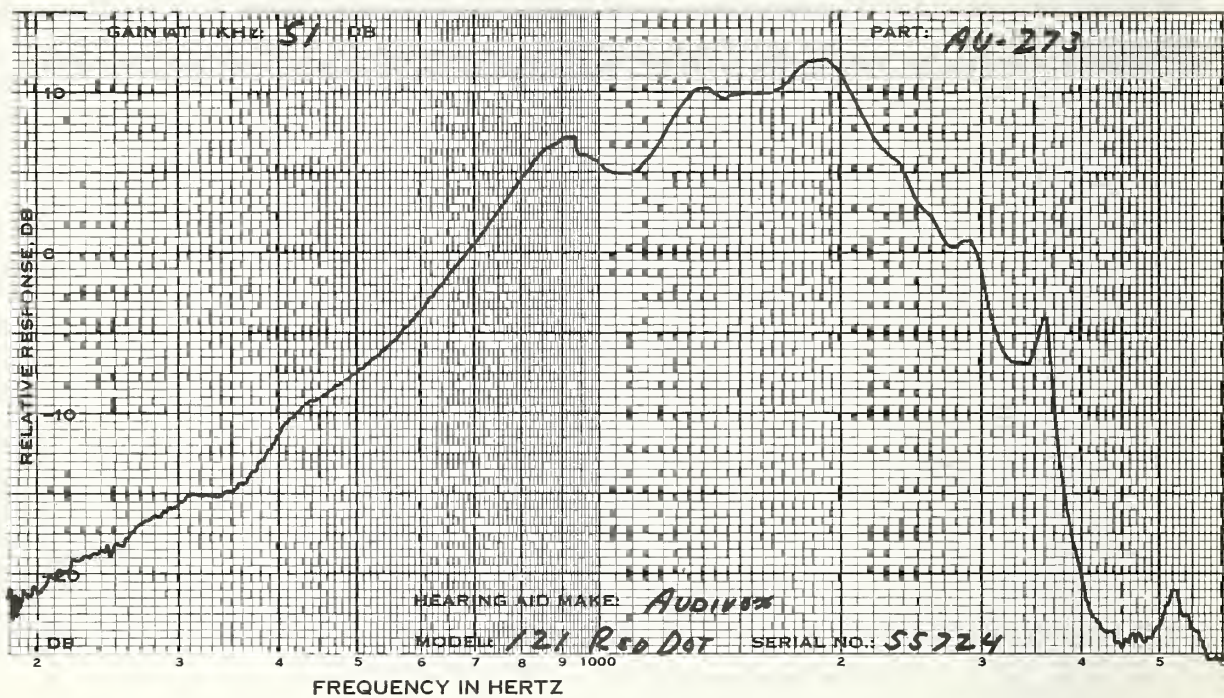












DAHLBERG  
 MODEL:HT1233 L:CCW C:CCW TUBING:1 7/16 BATTERY:S76

OE

CODE	DA-178	DA-179	DA-180
SERIAL #	HT13AT	HT33AT	HT88AT
DATE		MAR 12, 1974	

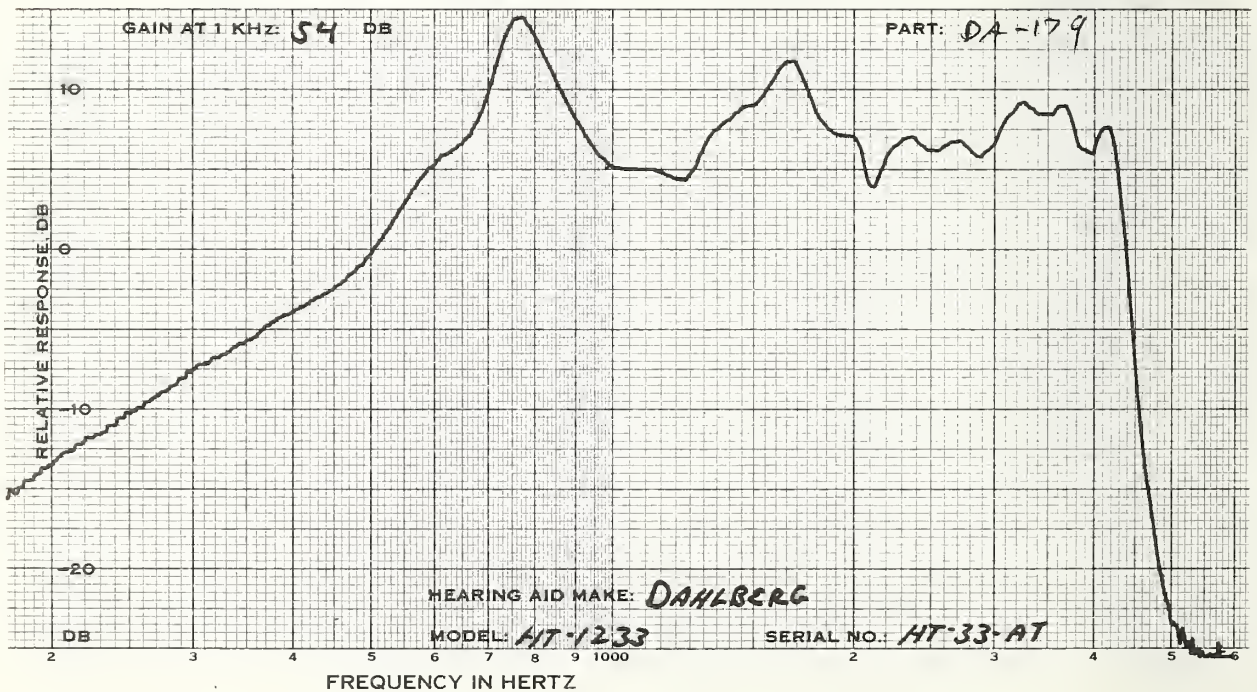
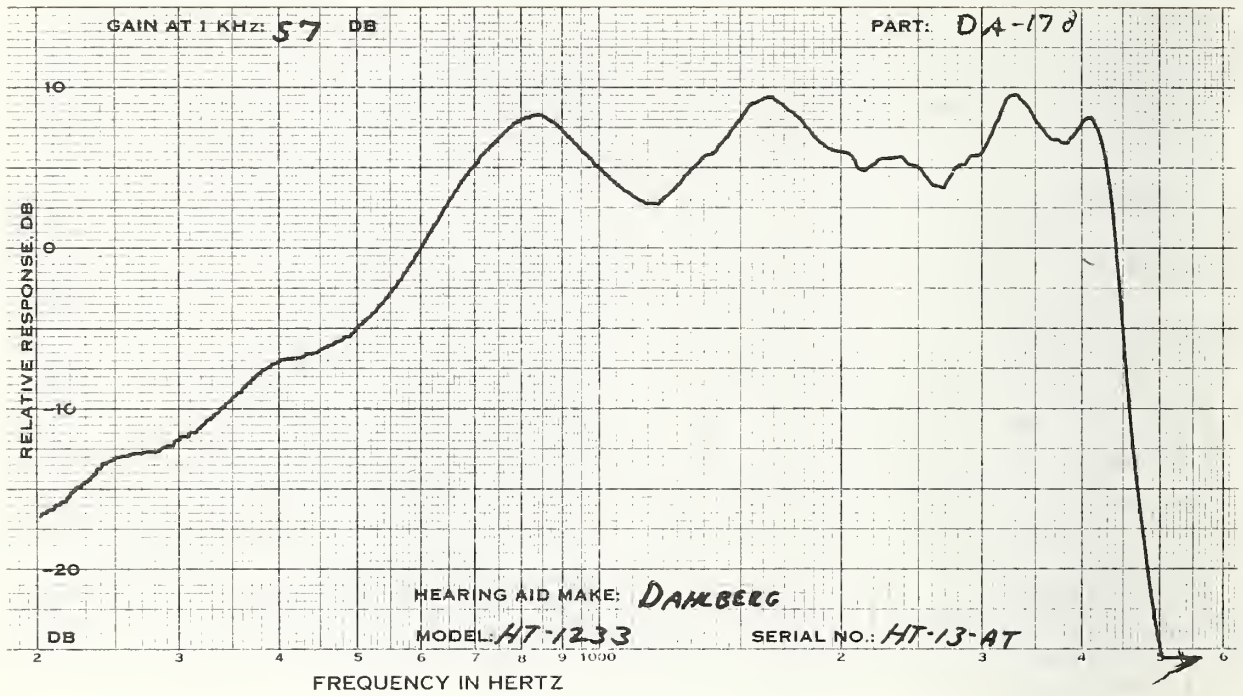
MEASUREMENTS WITH  
 FULL VOL CONTROL

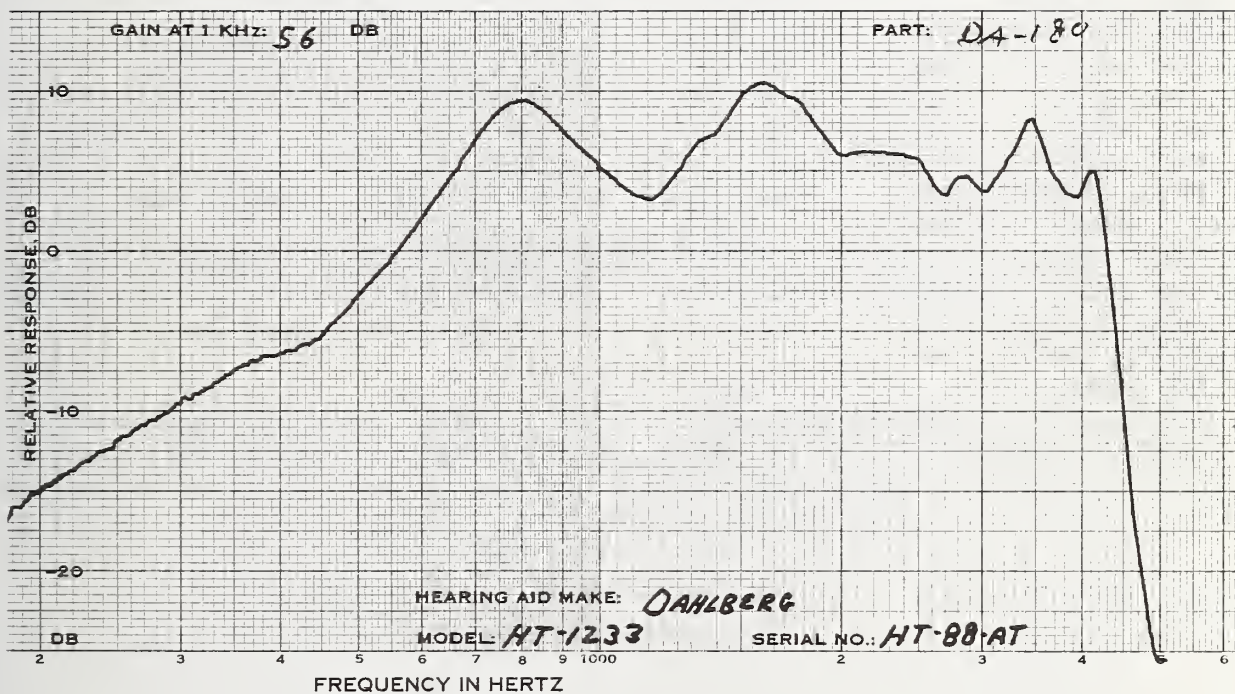
1KHZ GAIN DB	65.0	62.0	63.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	72.5	71.0	72.5
OUTPUT LEVEL DB	128.5	128.5	128.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	57.5	54.0	56.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 6	4 4	6 7
700 HZ %	1 2	1 3	2 3
900 HZ %	1 2	0 2	1 3
MAX DIST %	5 6	4 16	6 7
FREQ OF MAX DIS	500 500	500 2080	500 2000
S/N RATIO DB			
1KHZ SIGNAL	40.5	39.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.3	2.7	3.7
65 DB INPUT	5.0	4.4	5.3
BATTERY VOLTAGE	1.57	1.57	1.57







DAHLBERG  
 MODEL:LP1247 TONE:NONE TUBING:1 7/16 BATTERY:M13

OE

CODE	DA-181	DA-182	DA-183
SERIAL #	LP24AA	LP27AA	LP37AA
DATE		MAR 13, 1974	

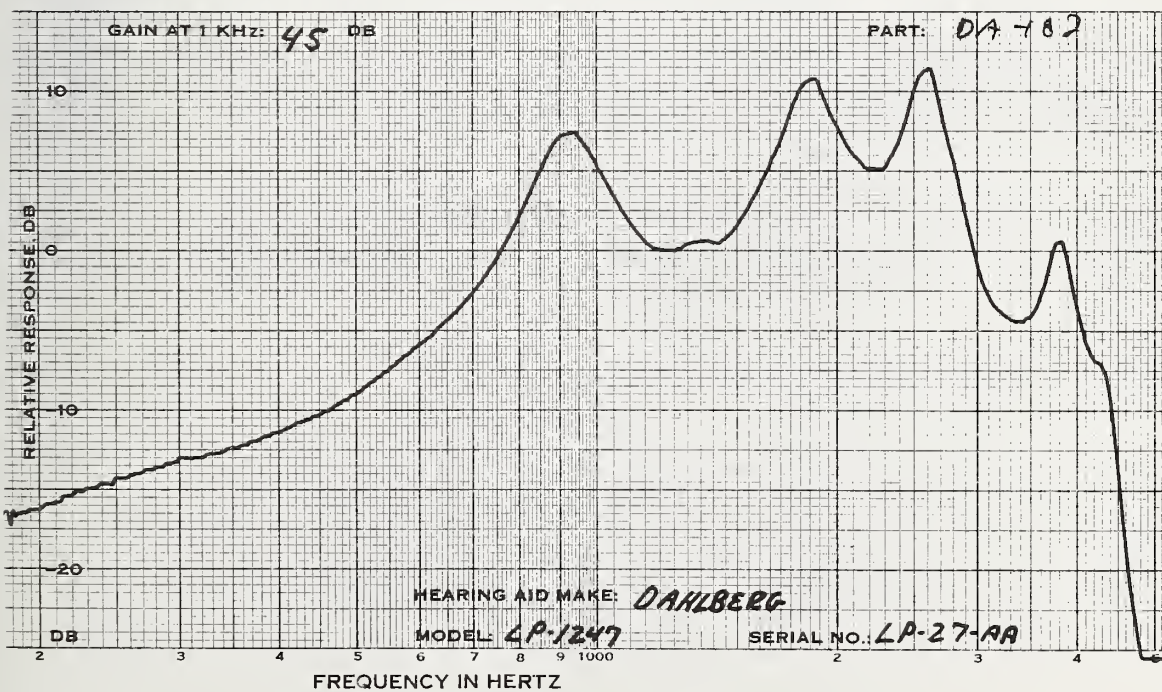
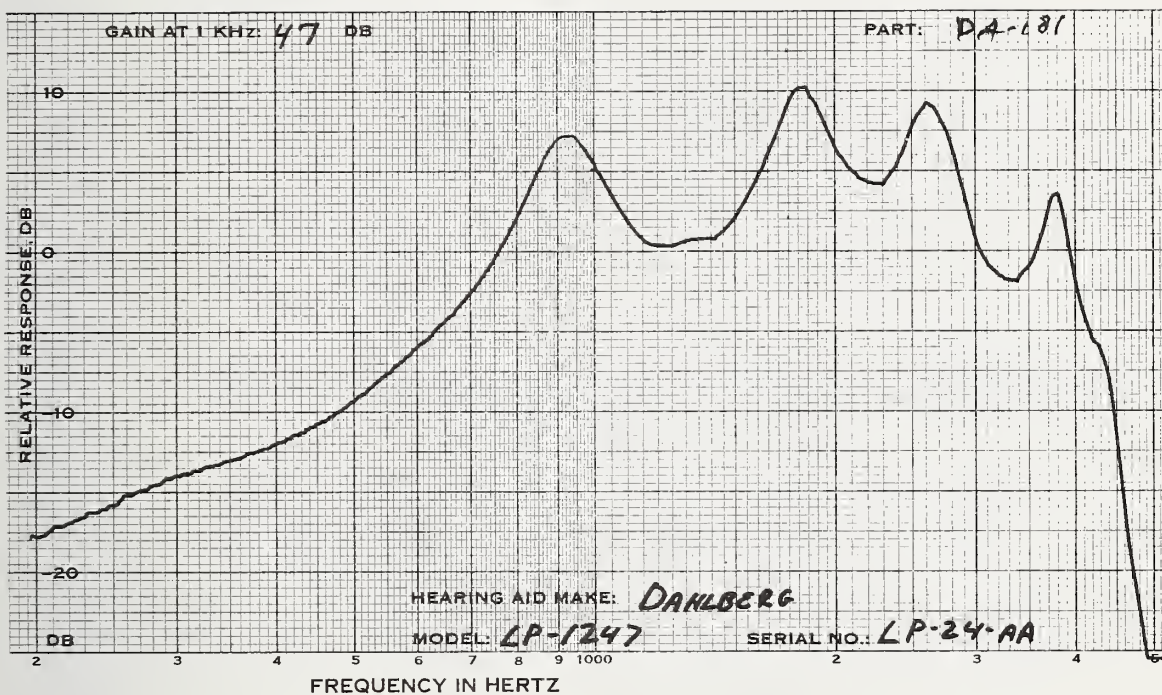
MEASUREMENTS WITH  
 FULL VOL CONTROL

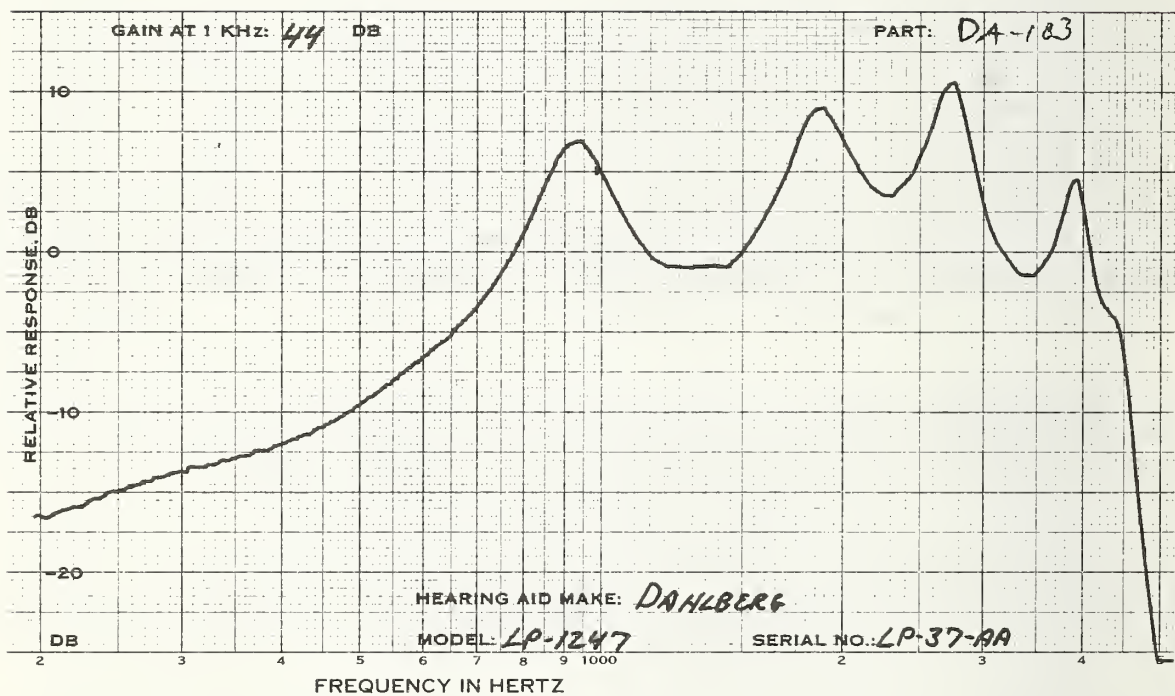
1KHZ GAIN DB	49.5	52.0	48.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	75.0	77.0
OUTPUT LEVEL DB	116.5	116.0	114.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	47.0	45.0	44.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	8 15	8 14	4 24
700 HZ %	2 5	2 4	1 9
900 HZ %	2 4	2 4	0 6
MAX DIST %	8 15	8 14	4 24
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.0	45.0	45.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.9
65 DB INPUT	.8	.8	.9
BATTERY VOLTAGE	1.36	1.36	1.36







DAHLBERG DIR OE  
 MODEL:JR1260 COMP:1/2 TURN OUT(OFF) TUBING:1 7/16 BATTERY:S13

CODE	DA-184	DA-185	DA-186
SERIAL #	JR74AT	JR85AT	JR98AT
DATE		APR 30, 1974	

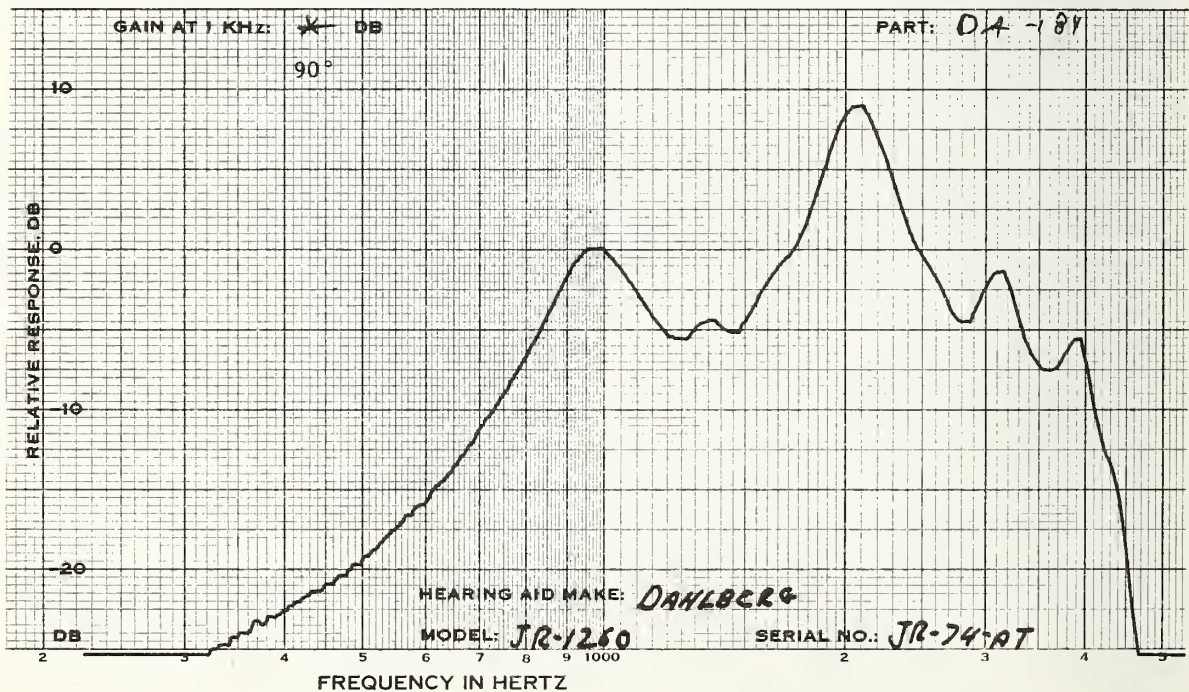
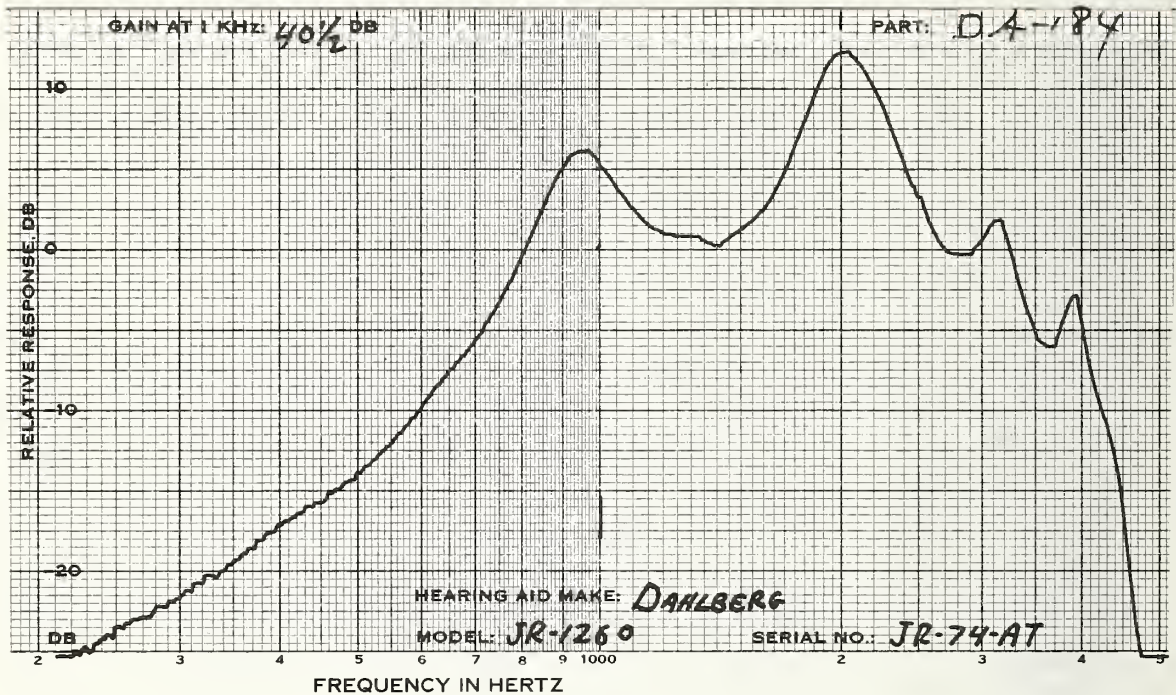
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	45.5	44.5	46.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.0	69.0	71.0
OUTPUT LEVEL DB	110.0	108.0	109.0

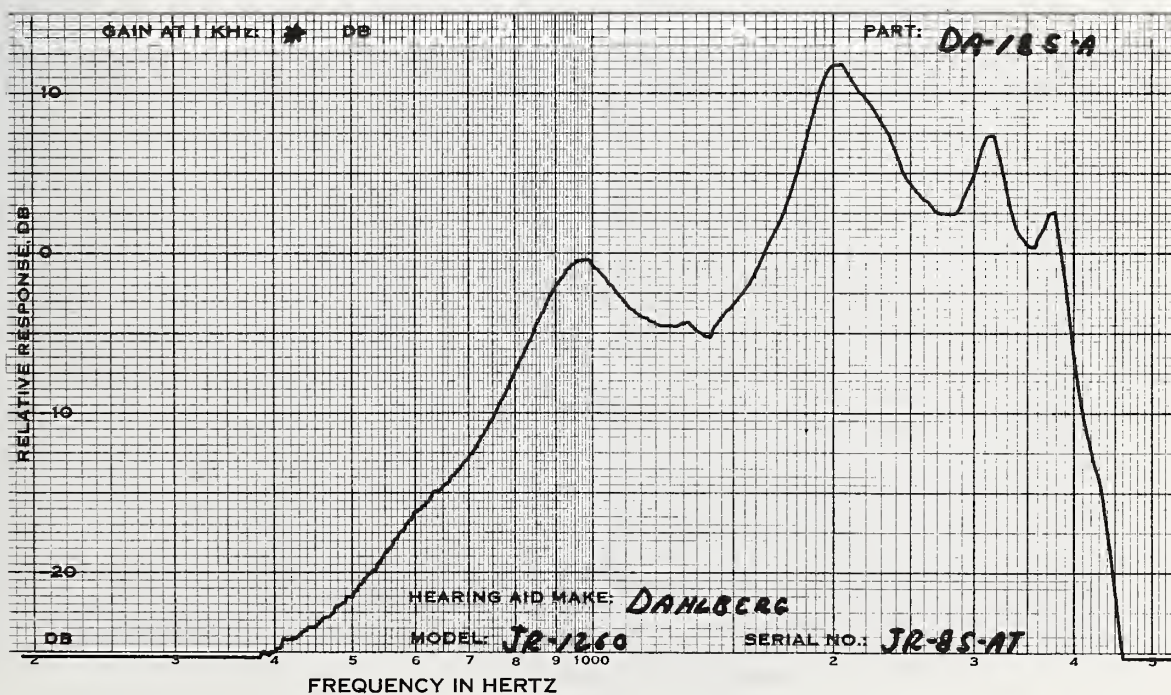
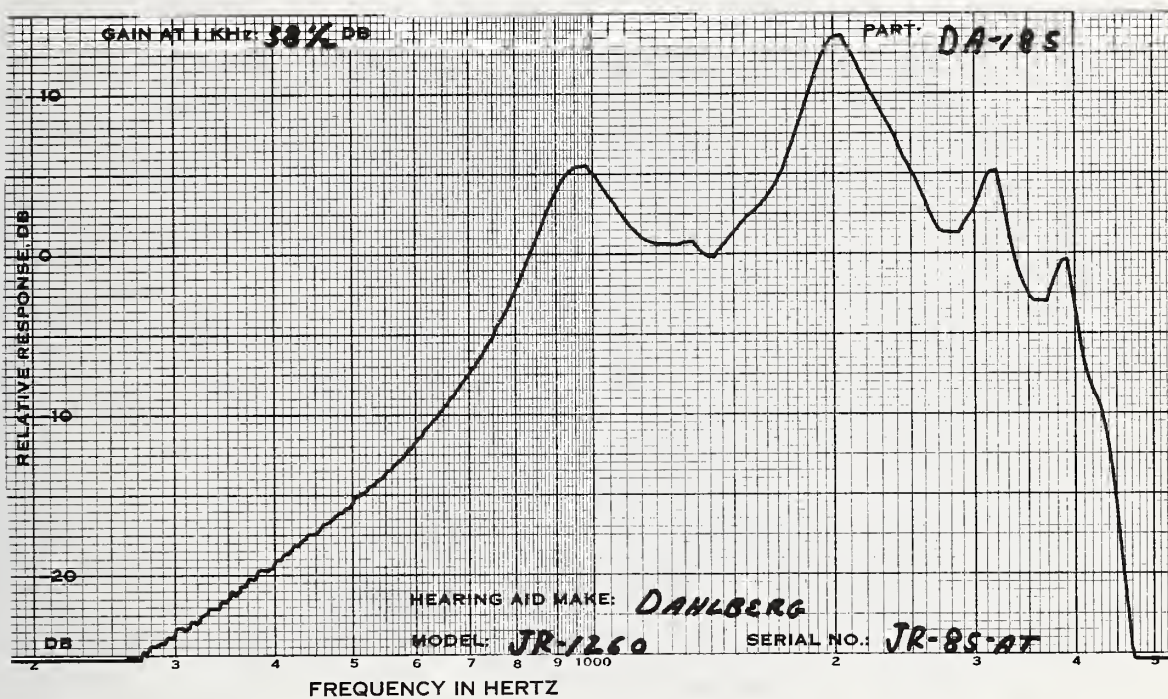
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

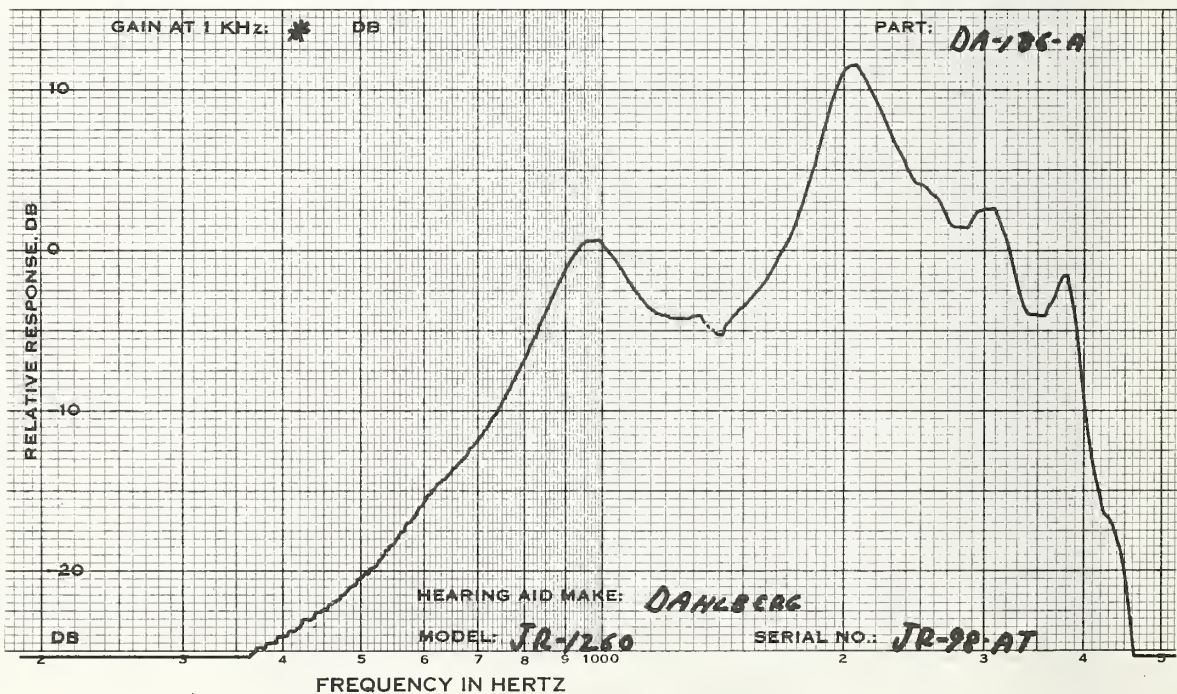
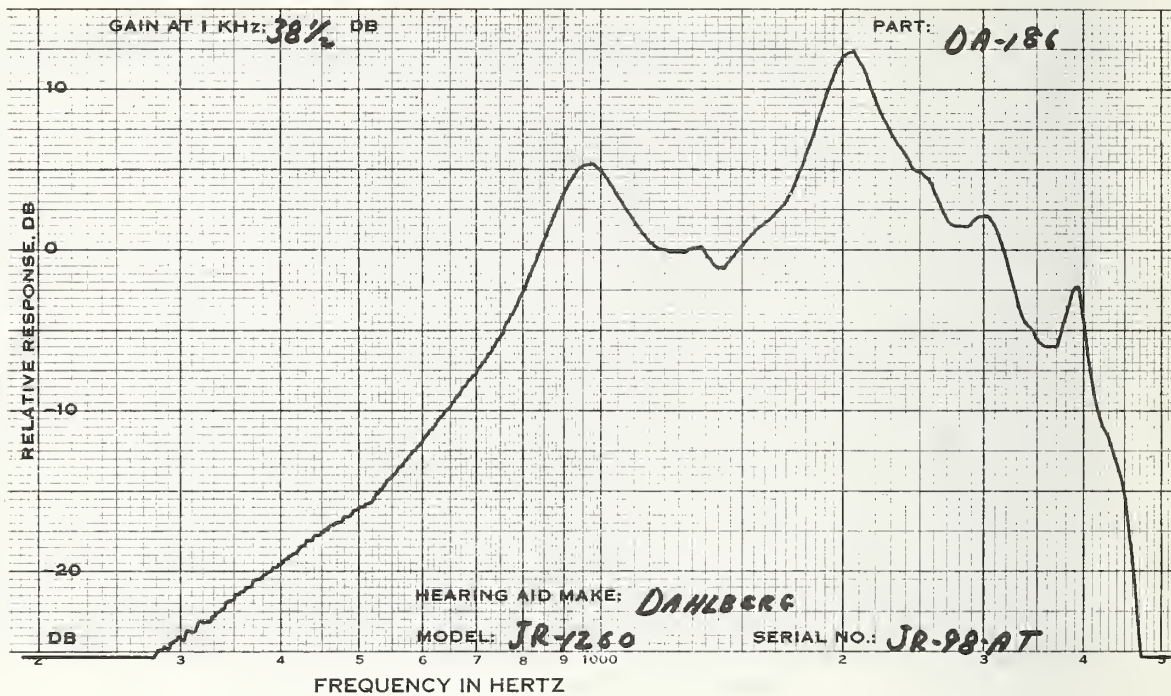
1KHZ GAIN DB	40.5	38.5	38.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	12 6	13 6	13 6
700 HZ %	3 2	3 2	3 2
900 HZ %	2 2	2 1	2 1
MAX DIST %	12 6	13 6	13 6
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	42.0	42.0	42.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.9
65 DB INPUT	.8	.8	.9
BATTERY VOLTAGE	1.57	1.57	1.57













DAHLBERG  
 MODEL:HF1250 TONE:CCW COMP:CCW TUBING:1 7/16 EG BATTERY:S76

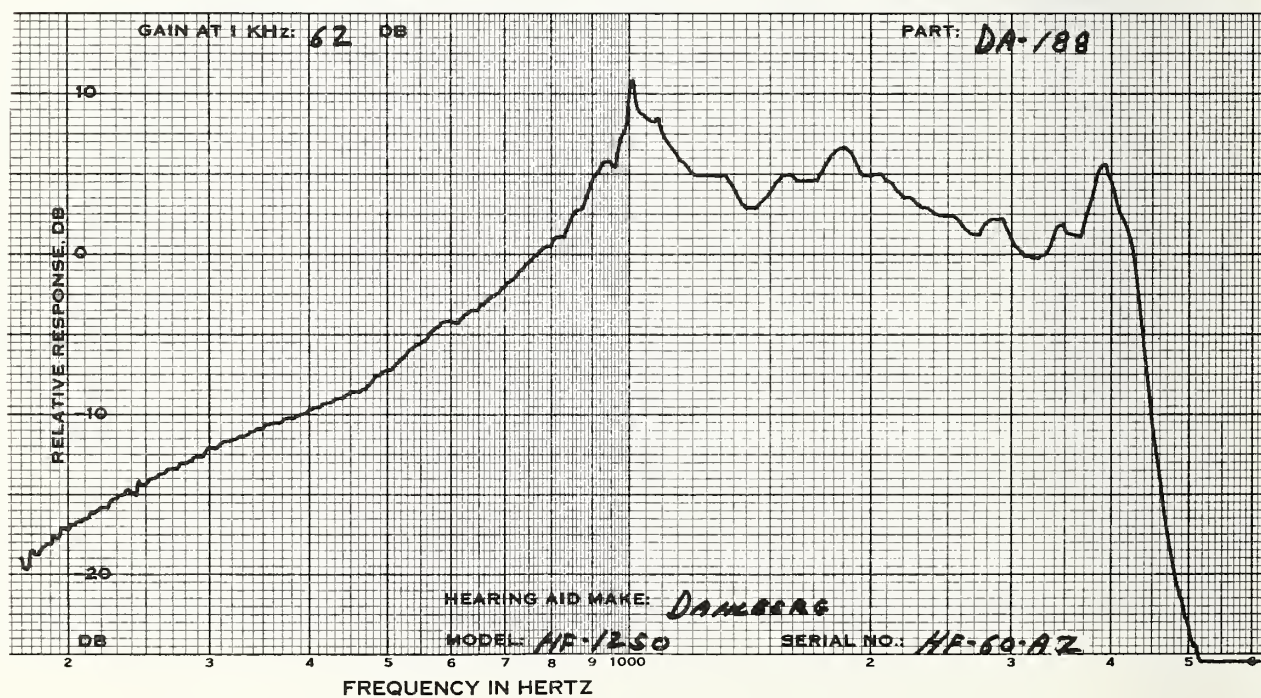
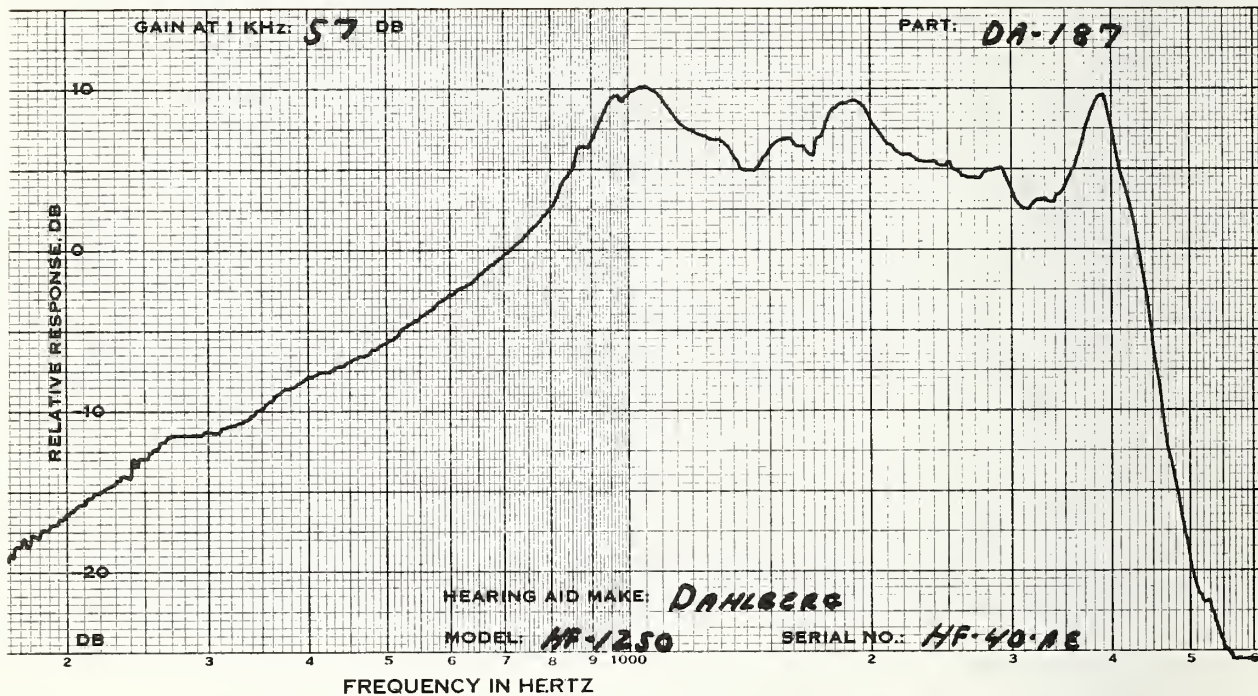
CODE	DA-187	DA-188	DA-189
SERIAL #	HF40AE	HF60AZ	HF84AD
DATE		MAY 2, 1974	

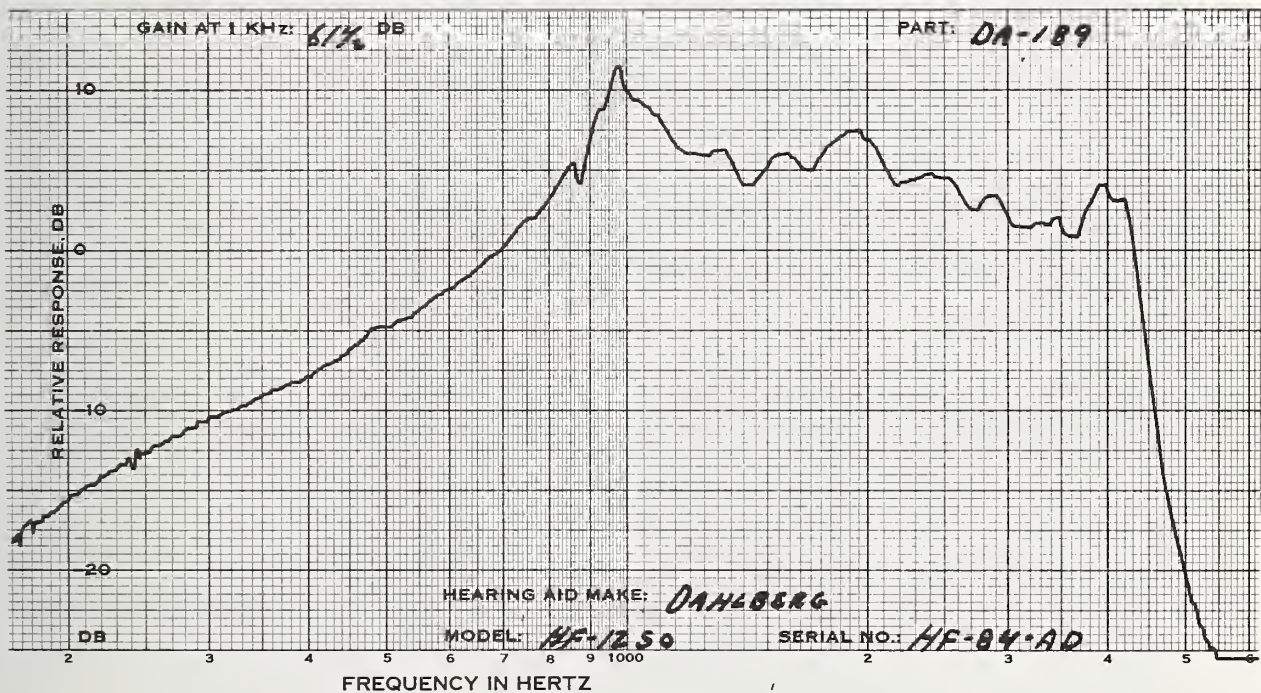
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	65.5	68.0	68.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	68.5	73.0	72.0
OUTPUT LEVEL DB	128.0	128.0	128.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	57.0	62.0	61.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 13	9 14	6 45
700 HZ %	4 5	5 6	5 25
900 HZ %	1 3	1 4	2 13
MAX DIST %	6 13	10 14	6 45
FREQ OF MAX DIS	500 500	560 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	43.5	44.5	45.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.2	3.5	3.1
65 DB INPUT	3.8	4.0	3.9
BATTERY VOLTAGE	1.57	1.55	1.57







DAHLBERG  
MODEL:HH1250 CROS TONE L:CCW C:CCW TUBING:1 7/16 BATTERIES:S76(2) CROS EG

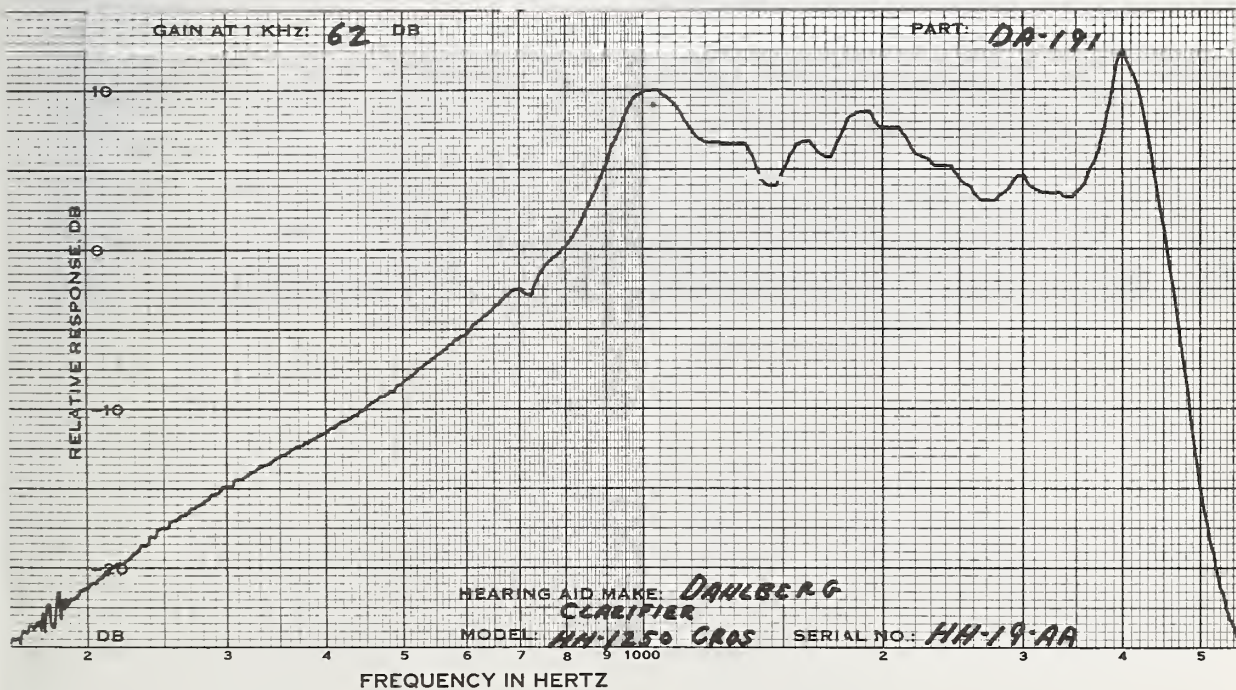
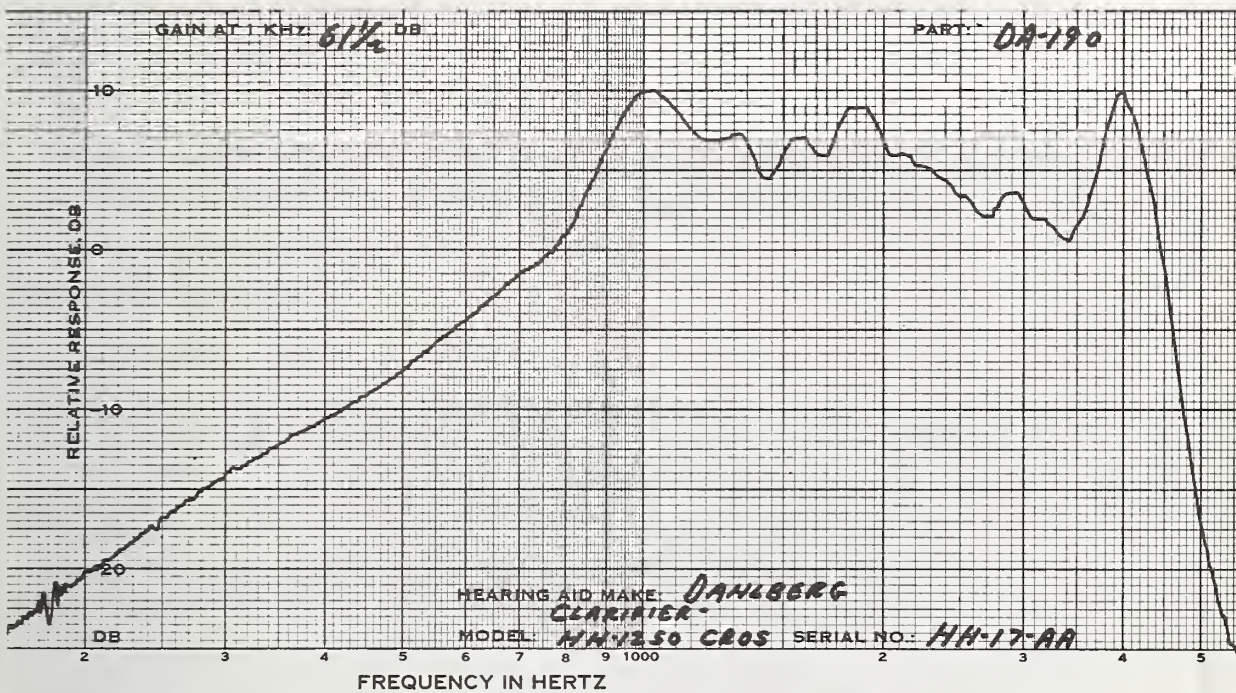
CODE	DA-190	DA-191	DA-192
SERIAL #	HH17AA	HH19AA	HH21AA
DATE		MAY 10, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

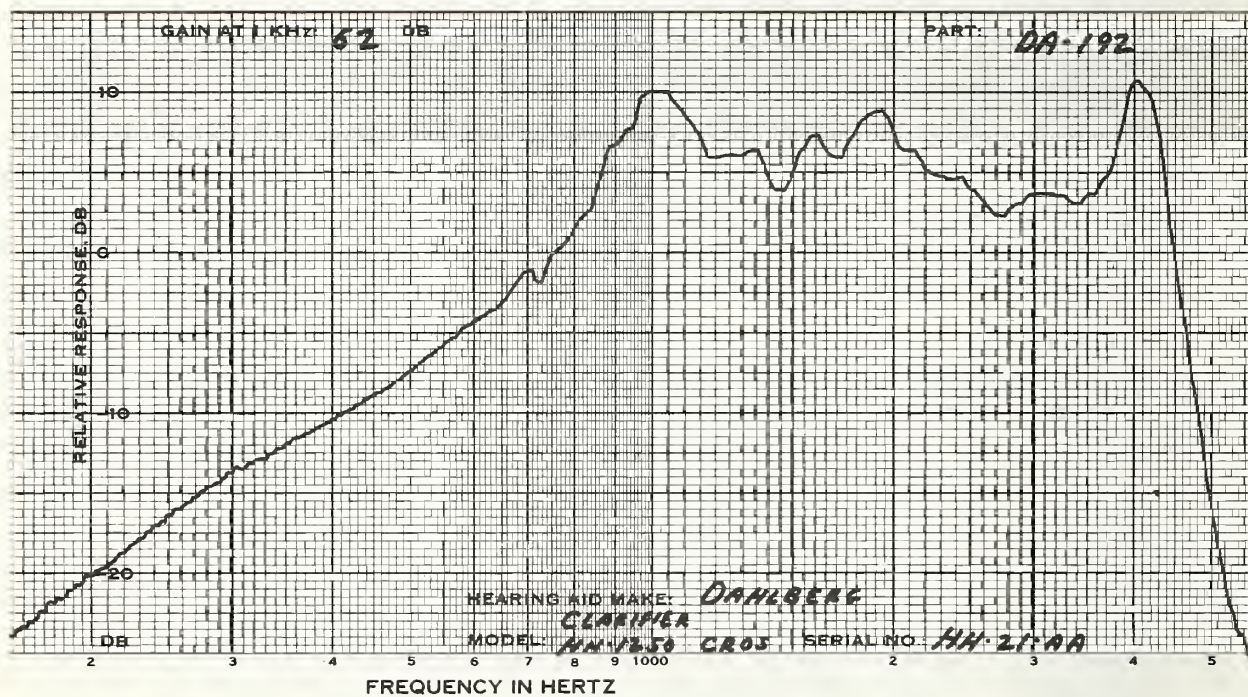
1KHZ GAIN DB	69.5	68.0	69.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.0	73.0	74.5
OUTPUT LEVEL DB	129.0	129.0	129.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	61.5	62.0	62.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	13 12	8 5	10 8
700 HZ %	4 6	4 2	4 2
900 HZ %	2 10	2 3	2 2
MAX DIST %	18 13	8 5	10 8
FREQ OF MAX DIS	540 510	530 530	500 500
S/N RATIO DB			
1KHZ SIGNAL	45.0	45.5	46.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.2 3.0	.2 3.1	.2 3.0
65 DB INPUT	.2 3.8	.2 3.9	.2 3.8
BATTERY VOLTAGE	1.59 1.57	1.59 1.57	1.59 1.57









DANAVOX OB  
 MODEL:647 SMP TONE:H RECEIVER:4620-51 BATTERIES:401(2)

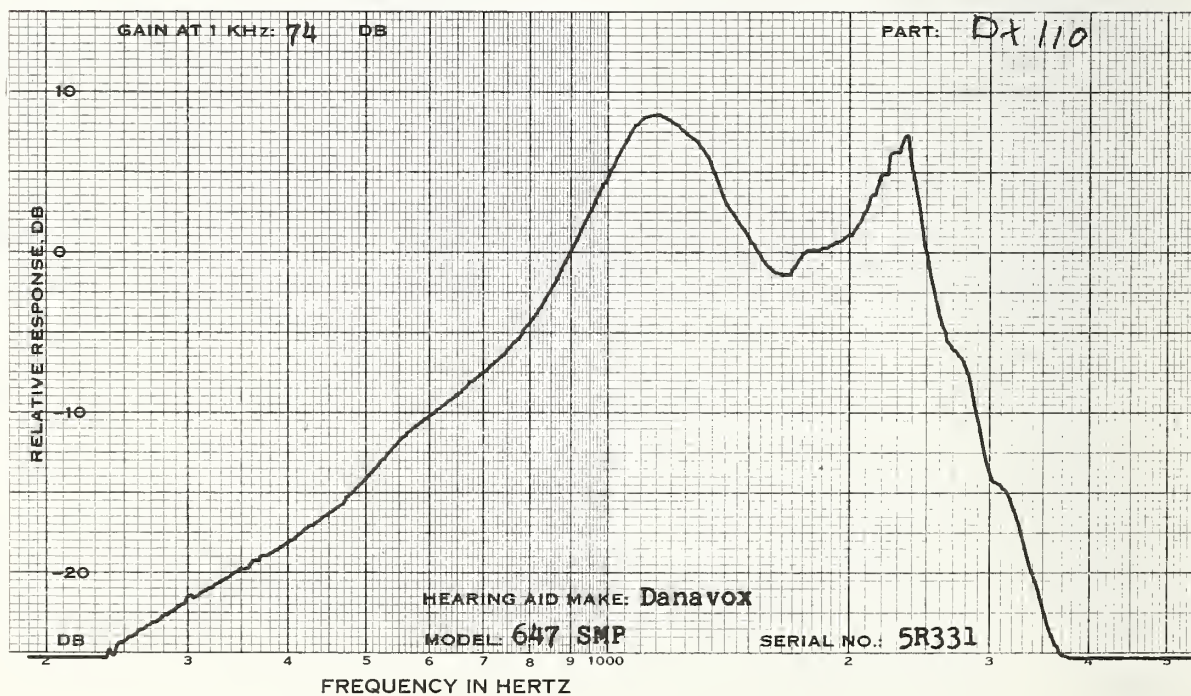
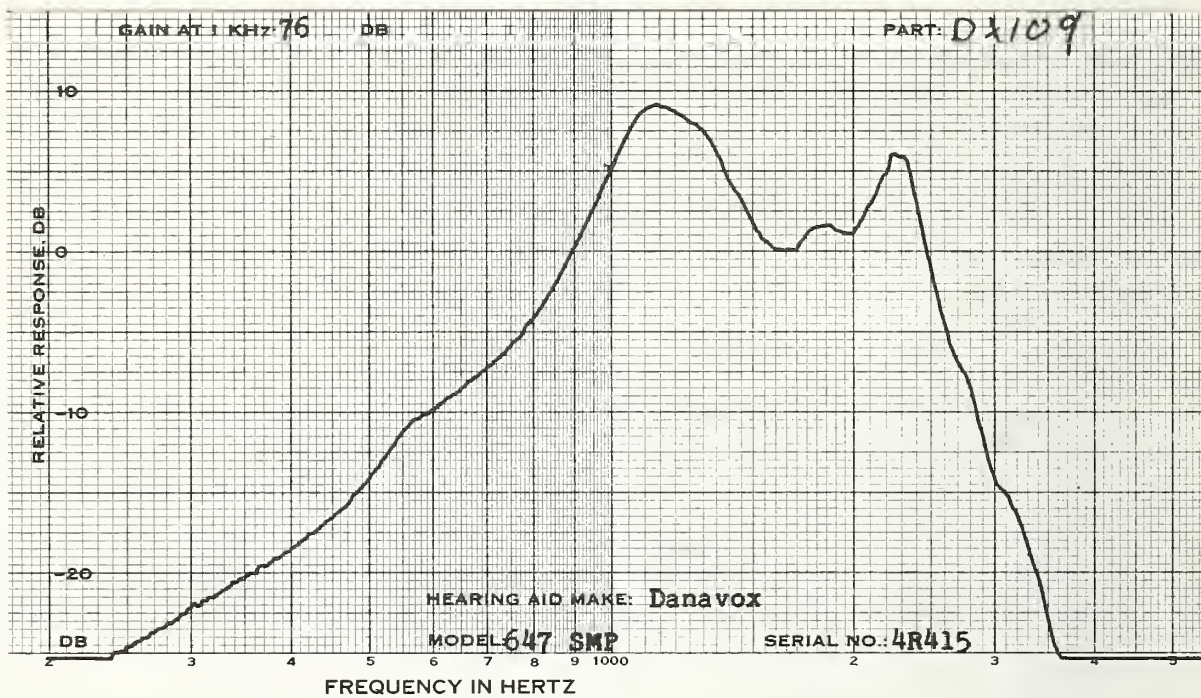
CODE	DX-109	DX-110	DX-111
SERIAL #	4R415	5R331	4R159
DATE		FEB 28, 1974	

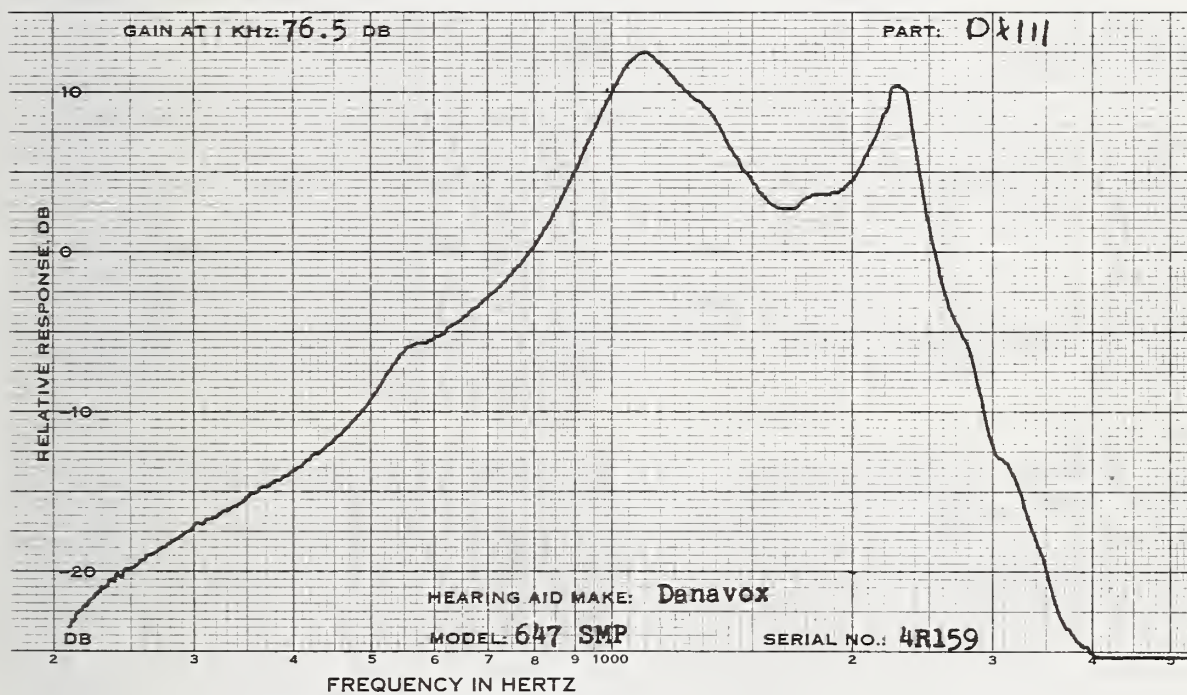
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	79.5	83.5	86.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.0	74.0	72.0
OUTPUT LEVEL DB	144.0	142.0	143.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	76.0	74.0	76.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	33 41	19 32	39 54
700 HZ %	15 16	10 14	12 14
900 HZ %	4 2	2 4	3 3
MAX DIST %	50 61	30 49	62 72
FREQ OF MAX DIS	560 570	560 570	560 550
S/N RATIO DB			
1KHZ SIGNAL	47.0	48.0	49.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	4.8 4.7	4.8 4.8	5.7 5.6
65 DB INPUT	21.0 22.0	17.5 17.5	18.0 18.0
BATTERY VOLTAGE	1.43 1.43	1.44 1.44	1.44 1.44







DANAVOX

OE HP

MODEL:685S TONE:NONE TUBING:1 1/2 BATTERY:675

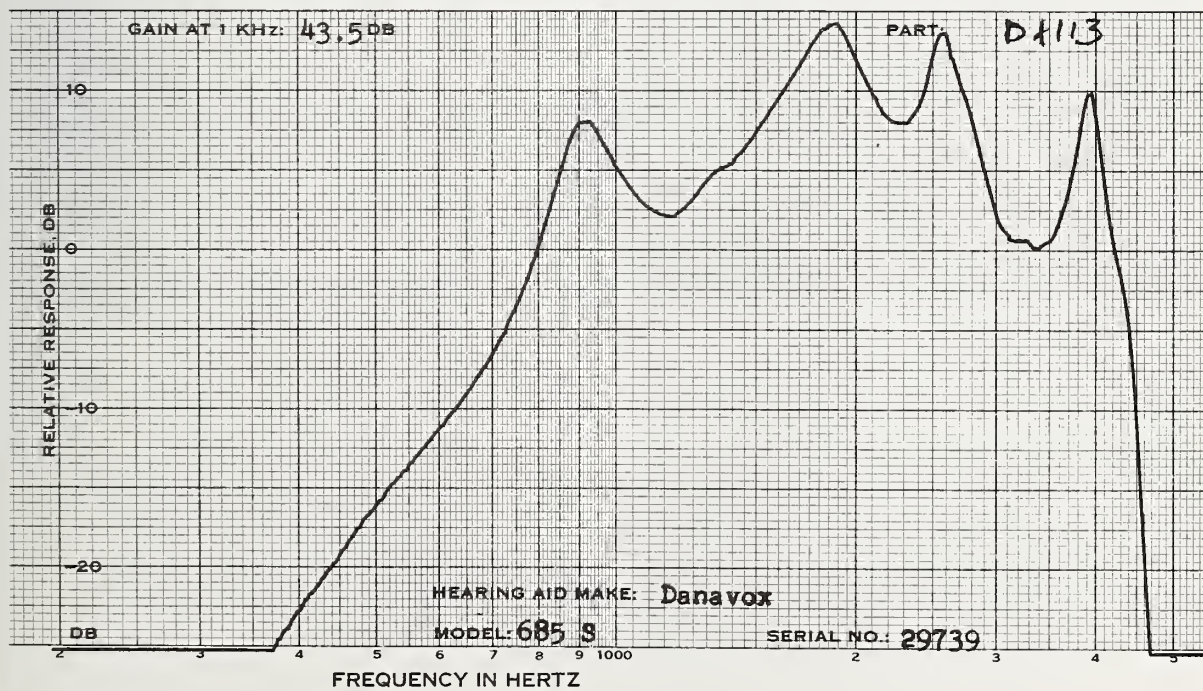
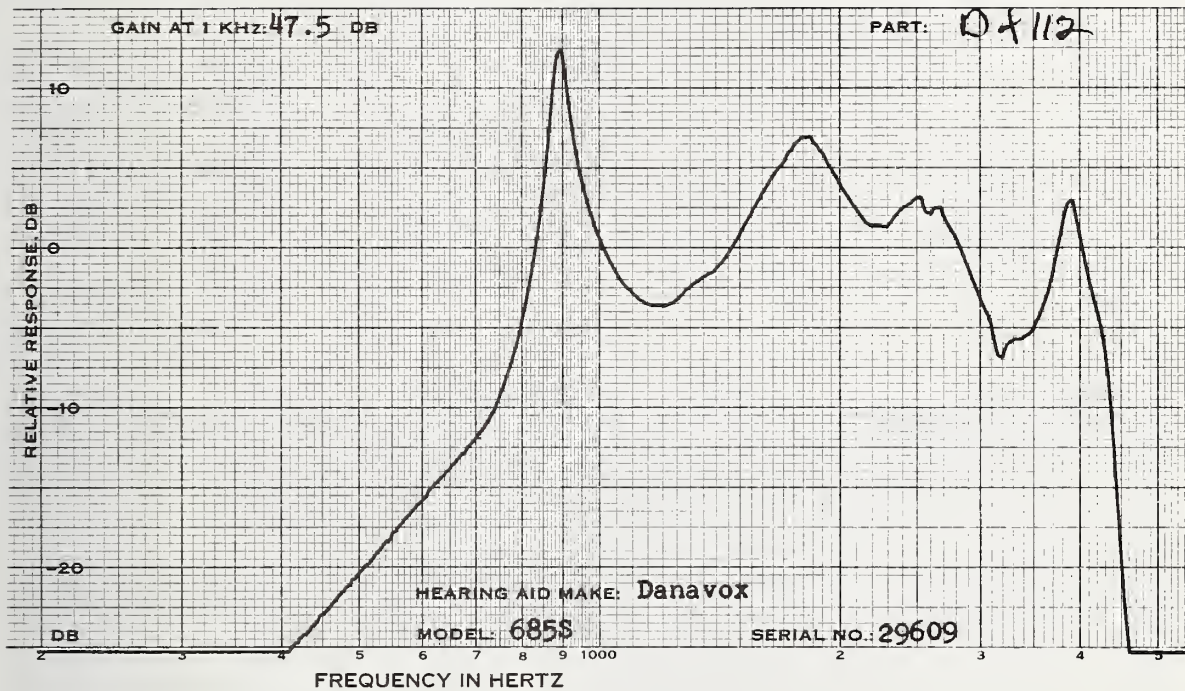
CODE	DX-112	DX-113	DX-114
SERIAL #	29609	29739	29964
DATE		MAR 1, 1974	

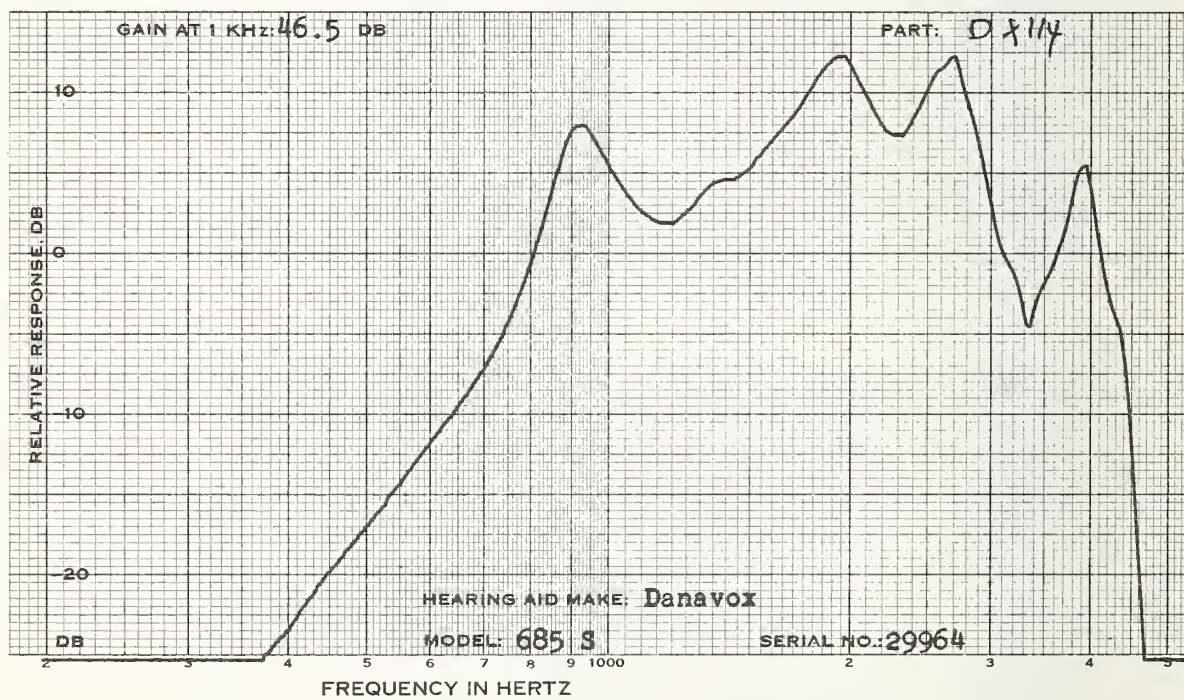
MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	48.0	43.5	46.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	83.0	86.0	87.0
OUTPUT LEVEL DB	119.0	119.0	120.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	47.5	43.5(FULL)	46.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	63.0 73.0	61.5 71.5
1000 HZ %	2 7	0 1	1 6
1500 HZ %	1 16	1 32	1 33
2000 HZ %	1 3	0 15	1 11
MAX DIST %	5 28	5 61	6 67
FREQ OF MAX DIS	1310 1340	1810 1340	1310 1330
S/N RATIO DB			
1KHZ SIGNAL	48.5	47.0	49.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.7	2.0	1.9
65 DB INPUT	1.7	2.0	1.9
BATTERY VOLTAGE	1.37	1.34	1.34
S/N 2KHZ	51.5	53.5	54.5







DANAVOX HP OE  
 MODEL:685U TONE:NONE TUBING:1 1/2 BATTERY:675

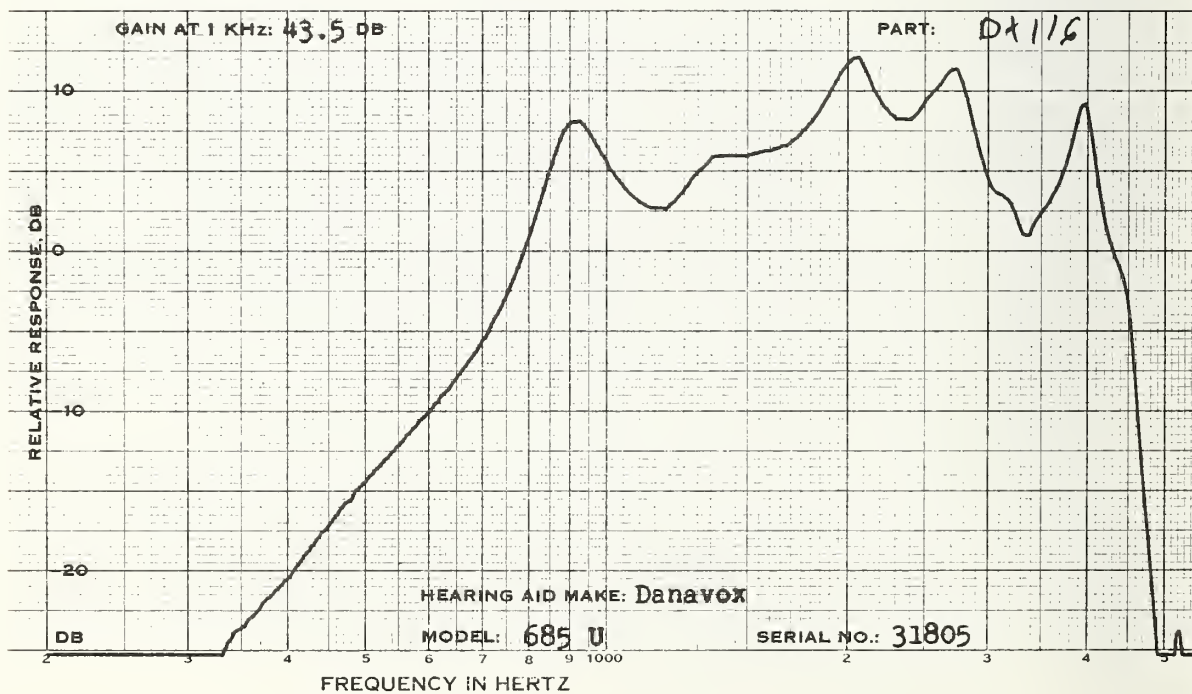
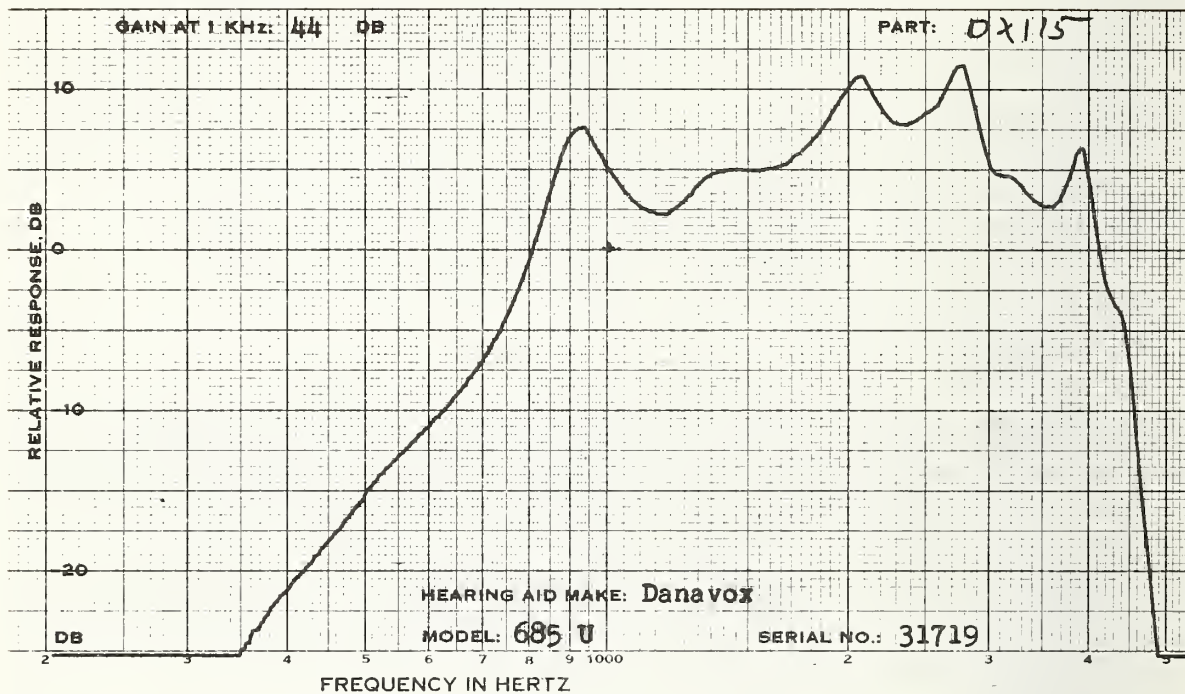
CODE	DX-115	DX-116	DX-117
SERIAL #	31719	31805	31834
DATE		MAR 4, 1974	

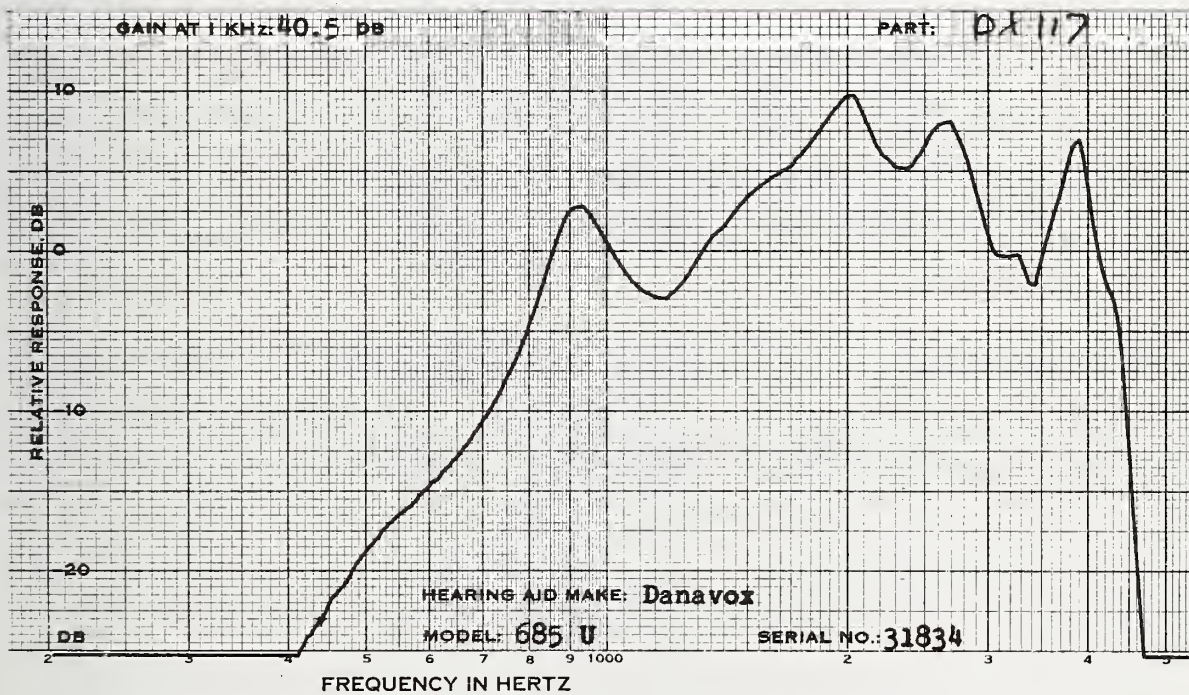
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	44.0	45.0	40.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	87.0	87.0	89.0
OUTPUT LEVEL DB	114.5	115.5	114.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	44.0(FULL)	43.5	40.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.5 70.5
1000 HZ %	1 3	1 5	0 1
1500 HZ %	26 90	31 79	19 71
2000 HZ %	7 35	5 29	6 20
MAX DIST %	31 148	39 133	19 100
FREQ OF MAX DIS	1440 1440	1430 1370	1870 1380
S/N RATIO DB			
1KHZ SIGNAL	50.0	48.0	51.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.6	.7	.7
65 DB INPUT	.6	.7	.7
BATTERY VOLTAGE	1.35	1.44	1.36
S/N 2KHZ	52.0	51.5	54.0







DANAVOX  
MODEL:695PPX    OUTPUT:P3    TUBING:1 1/2    BATTERY:675    OE

CODE	DX-118	DX-119	DX-120
SERIAL #	47216	54800	56402
DATE		MAR 4, 1974	

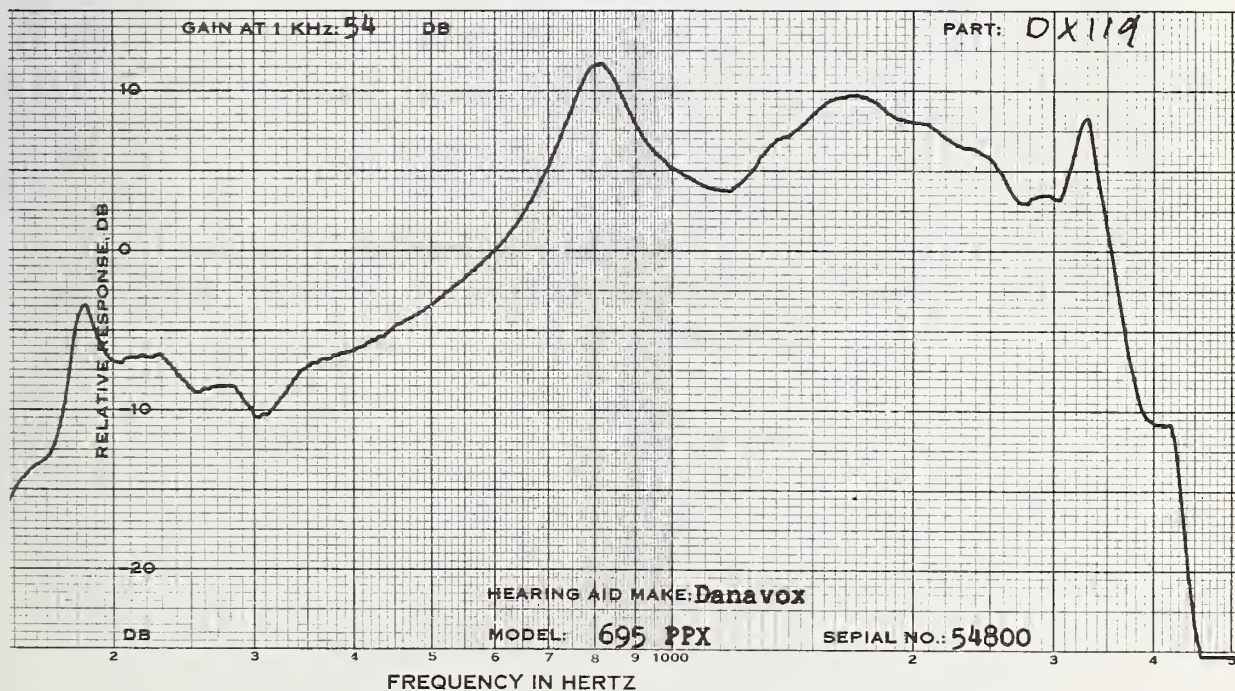
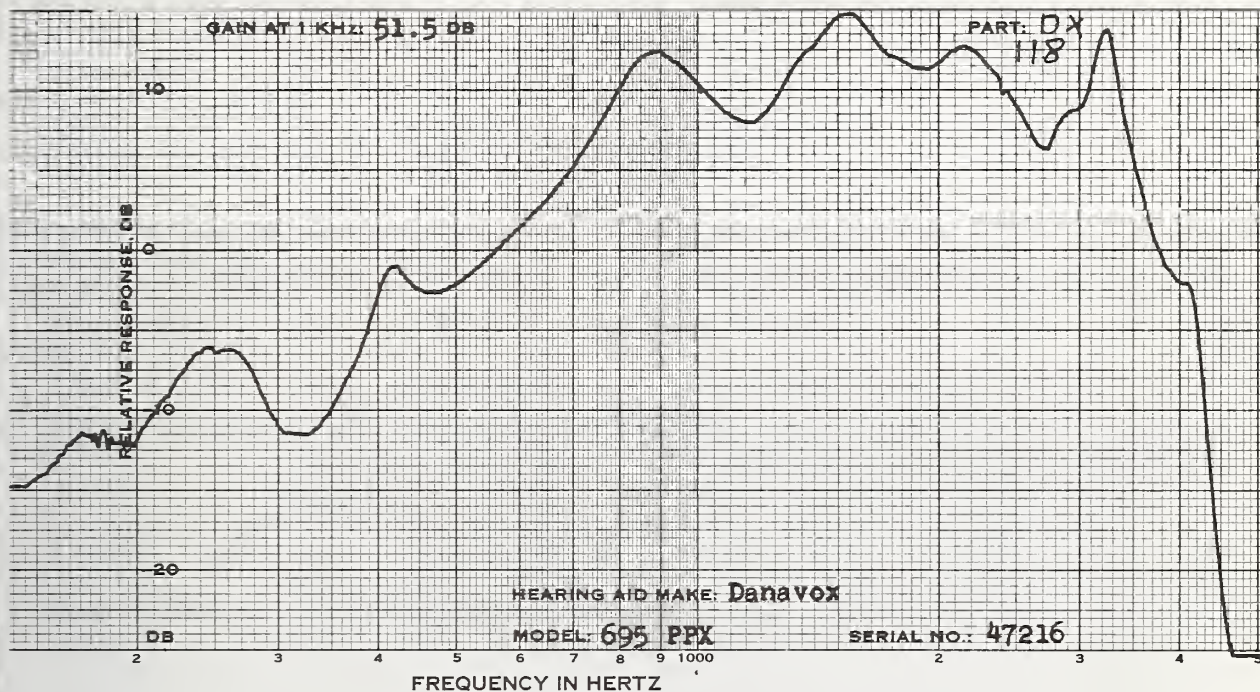
MEASUREMENTS WITH  
FULL VOL CONTROL

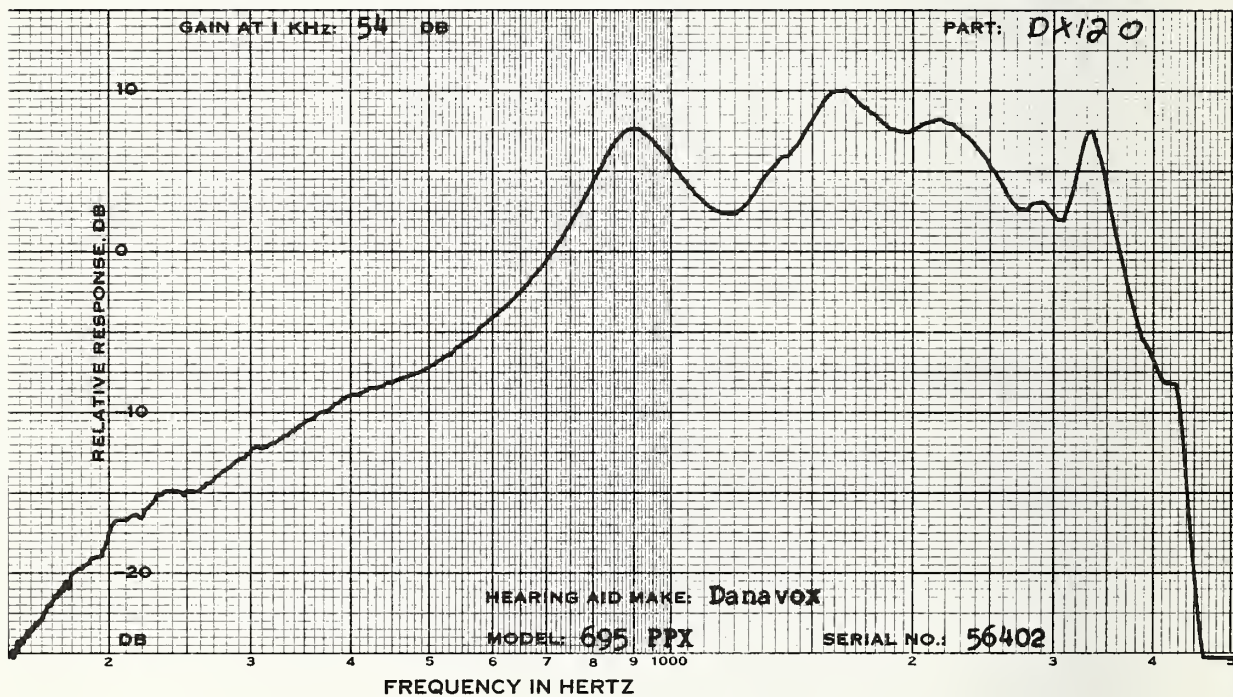
1KHZ GAIN    DB	51.5	57.5	56.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	76.0	77.0
OUTPUT LEVEL DB	126.5	125.5	125.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN    DB	51.5(FULL)	54.0	54.0
HARMONIC DIST			
@INPUT LEVEL    DB	64.5 74.5	60.0 70.0	60.0 70.0
500 HZ        %	11 22	10 18	18 30
700 HZ        %	4 7	3 5	6 12
900 HZ        %	1 0	0 2	1 1
MAX DIST        %	11 22	10 18	18 30
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO        DB			
1KHZ SIGNAL	46.5	41.5	48.0
S/HUM RATIO        DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	*****	.7
65 DB INPUT	.8	*****	1.1
BATTERY VOLTAGE	1.37	*****	1.42

THE BATTERY DRAIN COULD NOT BE MEASURED FOR DX-119,  
AS IT OSCILLATED WHEN THE AMMETER WAS PLACED IN THE CIRCUIT.







DANAVOX  
MODEL:727PPX TONE:SEE BELOW RECEIVER:4145-52 OB  
BATTERY:MNI500

CODE	DX-121	DX-122	DX-123
SERIAL #	12027	14734	14832
DATE		MAR 4, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

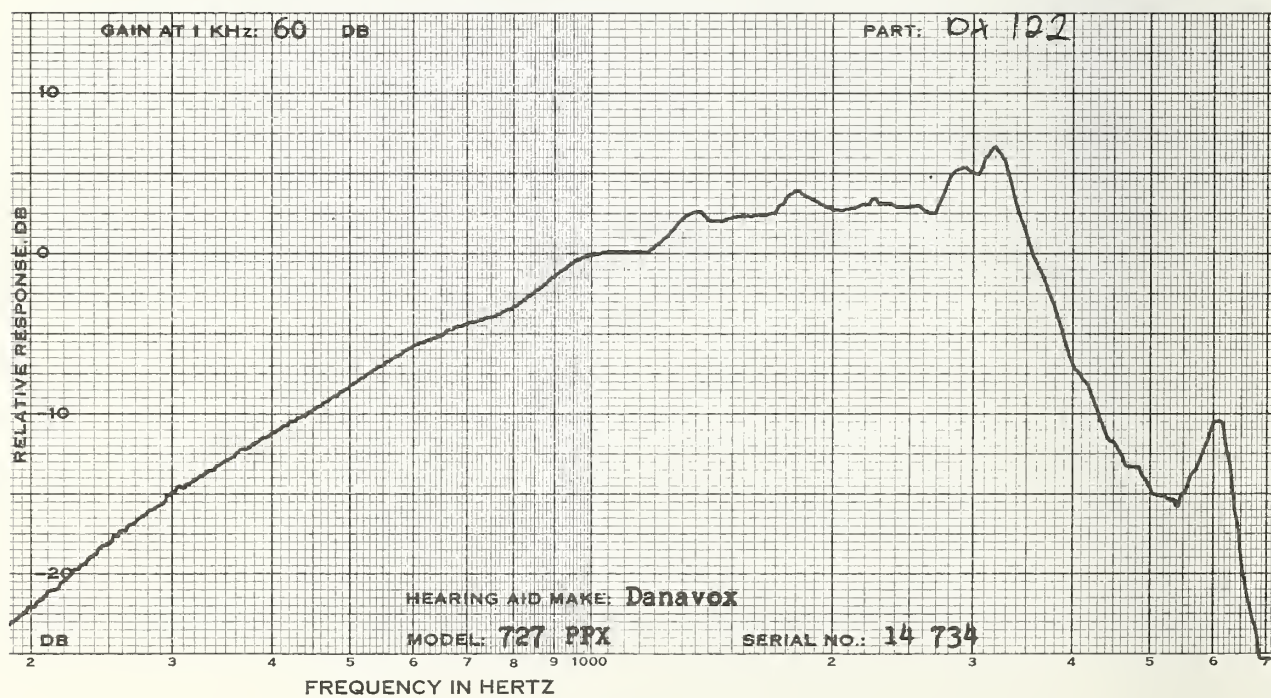
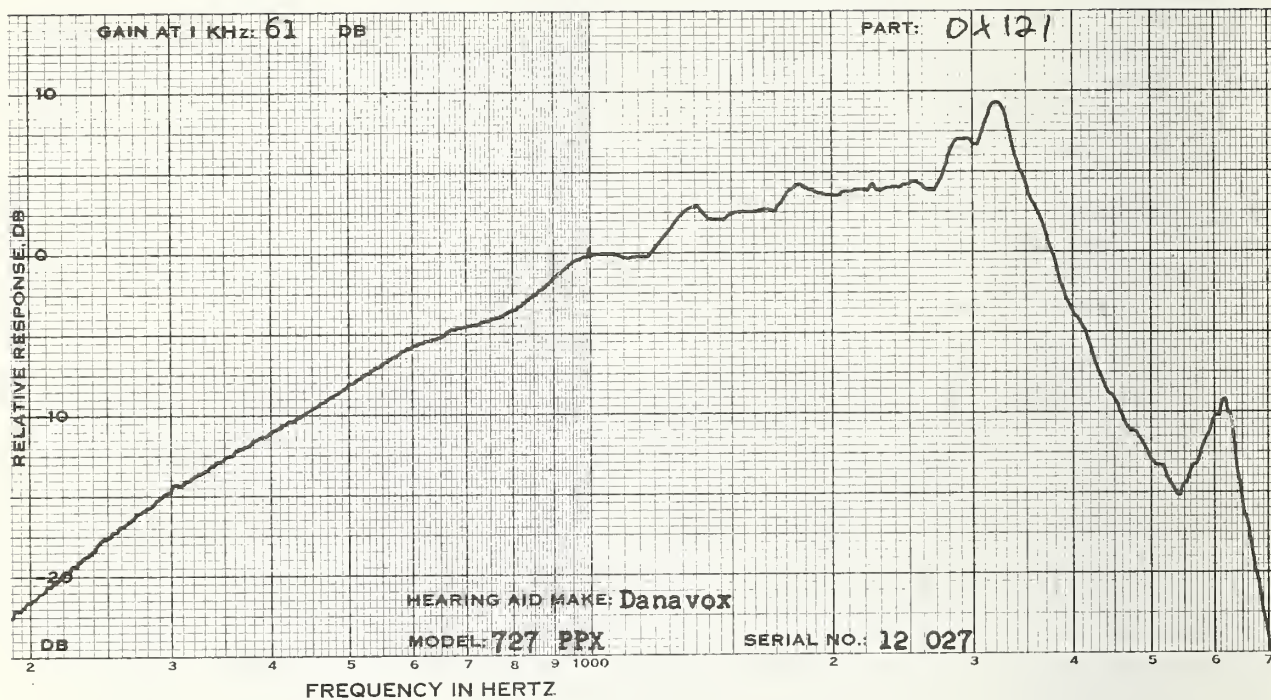
1KHZ GAIN DB	72.0	71.0	68.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	72.0	71.0	73.0
OUTPUT LEVEL DB	133.0	132.0	131.5

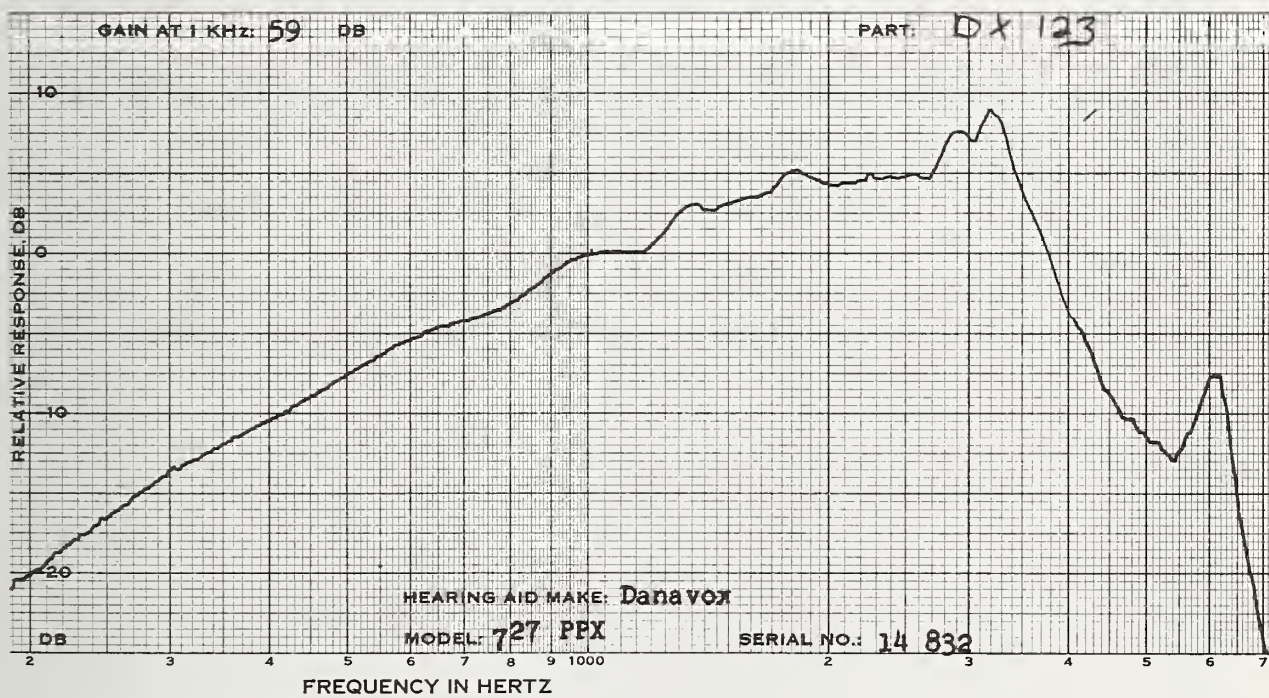
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	61.0	60.0	59.0
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	9 16	8 13	16 24
700 HZ %	14 22	12 16	26 26
900 HZ %	15 25	11 16	24 22
MAX DIST %	15 25	12 16	26 26
FREQ OF MAX DIS	900 900	700 900	700 700
S/N RATIO DB			
1KHZ SIGNAL	40.0	40.5	40.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	6.8	*****	*****
65 DB INPUT	28.0	*****	*****
BATTERY VOLTAGE	1.52	1.53	1.54

THE BATTERY DRAIN WAS NOT MEASURED FOR DX-122 AND DX-123

TONE:H ON-OFF:I PRE-GAIN:MAX







DANAVOX  
 MODEL:735C C:2 TUBING:1 1/2 BATTERY:675 SPEC OE

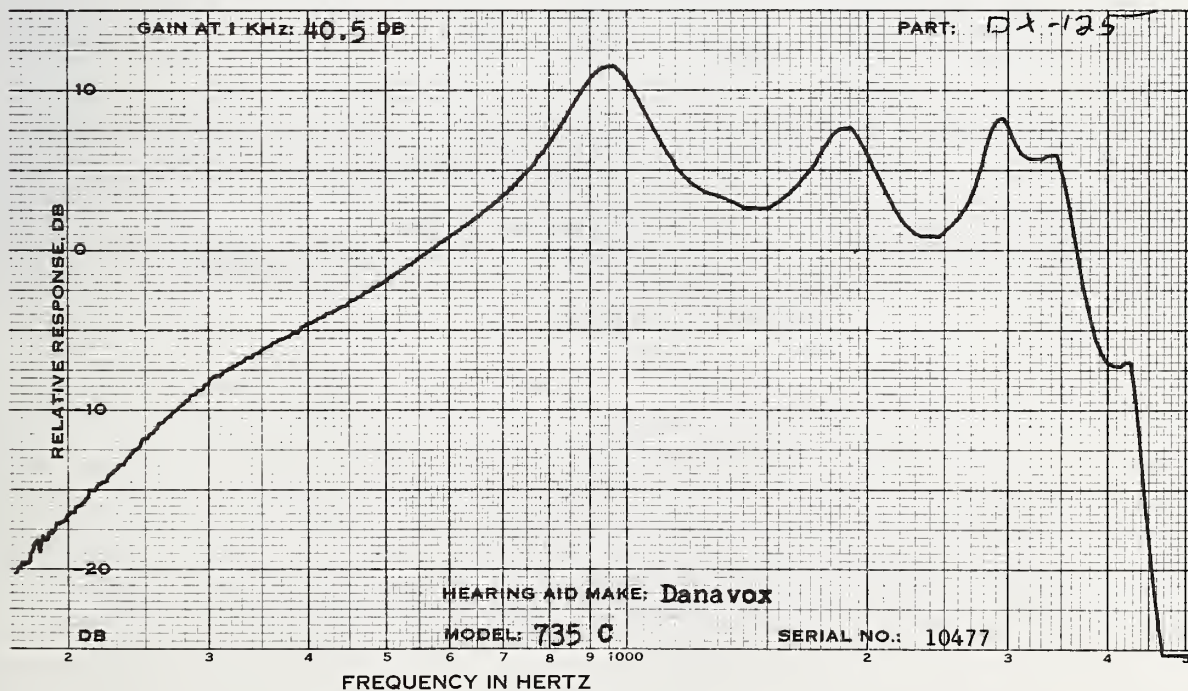
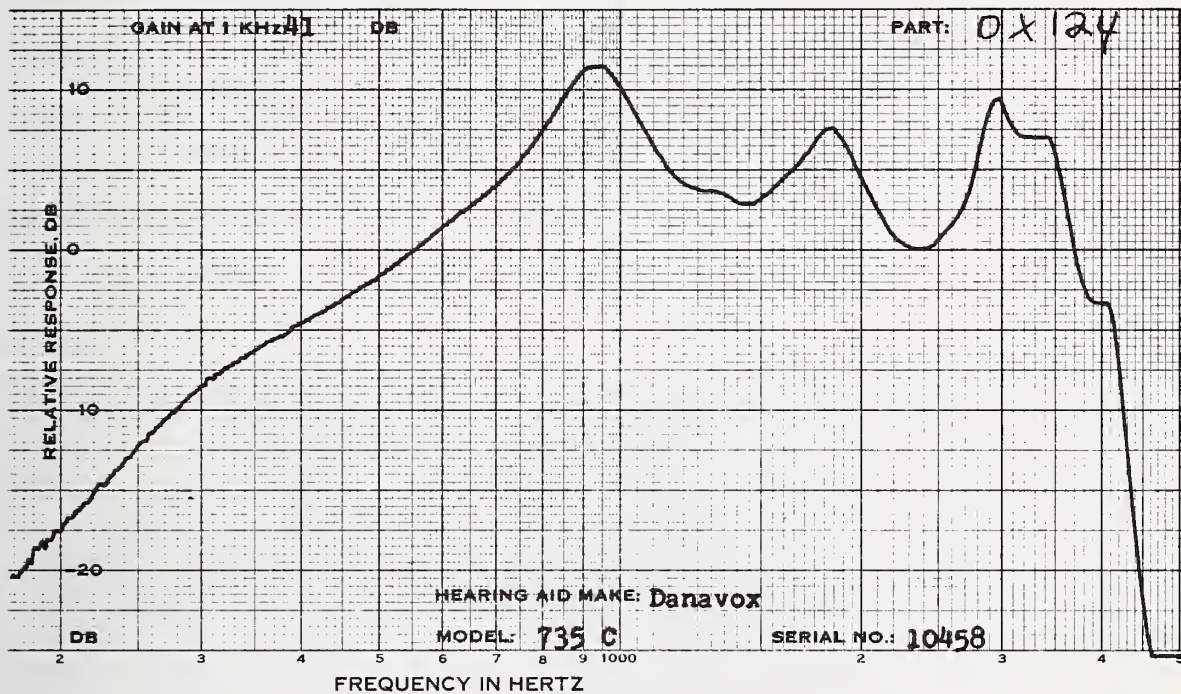
CODE	DX-124	DX-125	DX-126
SERIAL #	10458	10477	10495
DATE		MAR 6, 1974	

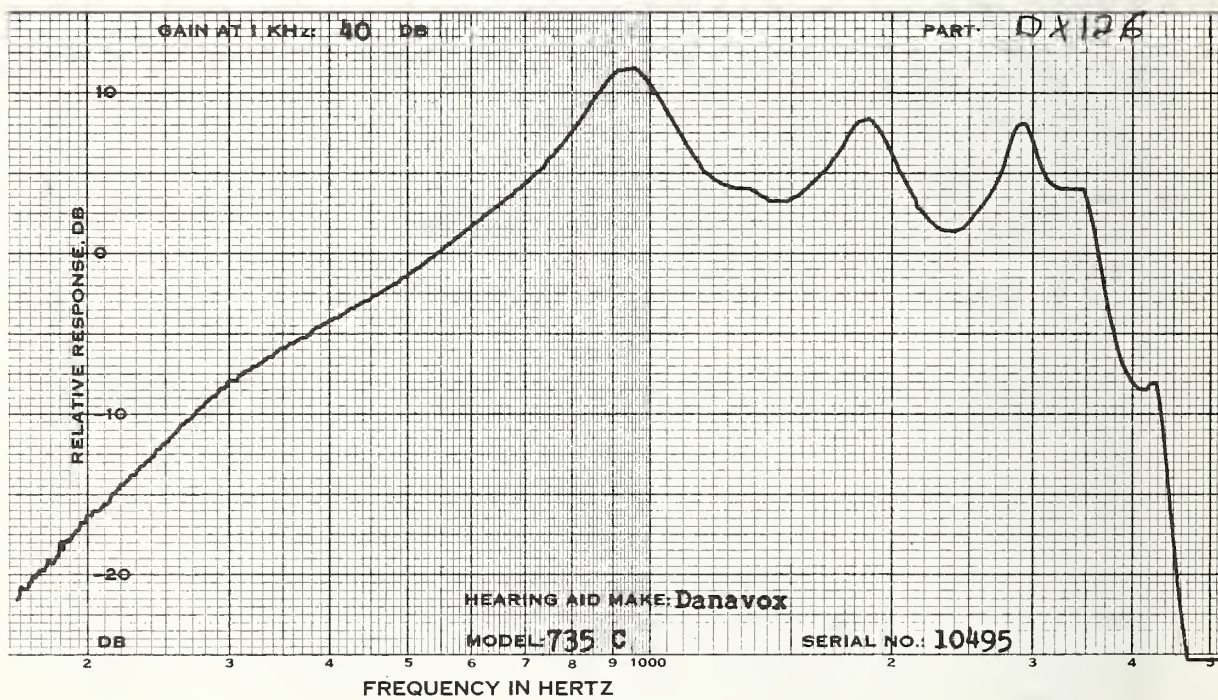
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	45.0	45.0	44.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.0	77.5	82.0
OUTPUT LEVEL DB	108.0	107.0	107.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	41.0	40.5	40.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 20	5 23	5 21
700 HZ %	4 9	4 8	3 9
900 HZ %	2 7	2 8	3 9
MAX DIST %	8 20	7 23	7 21
FREQ OF MAX DIS	610 500	610 500	610 500
S/N RATIO DB			
1KHZ SIGNAL	40.5	42.0	41.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.7	.7	.6
65 DB INPUT	.7	.7	.6
BATTERY VOLTAGE	1.44	1.43	1.45







## FIDELITY

OE

MODEL:F1 TONE:NONE TUBING:30MM BATTERY:S13

CODE	FI-187	FI-188	FI189A
SERIAL #	5609	5623	F1527
DATE	MAR 6, 1974	MAR 6, 1974	APR 18, 1974

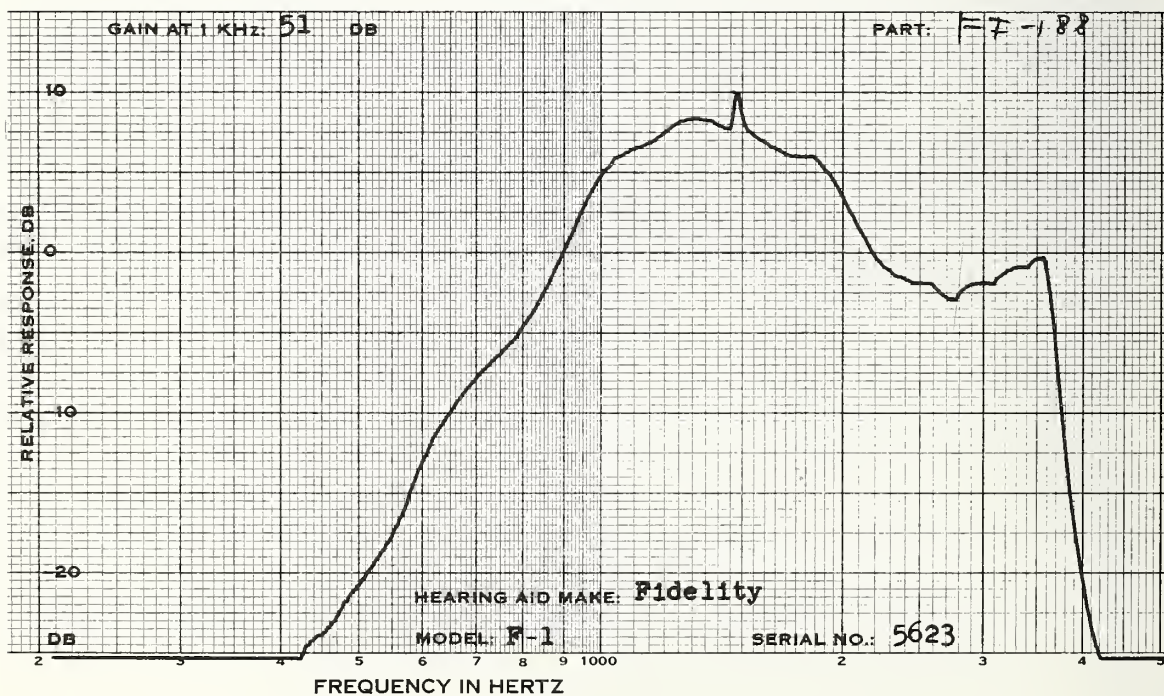
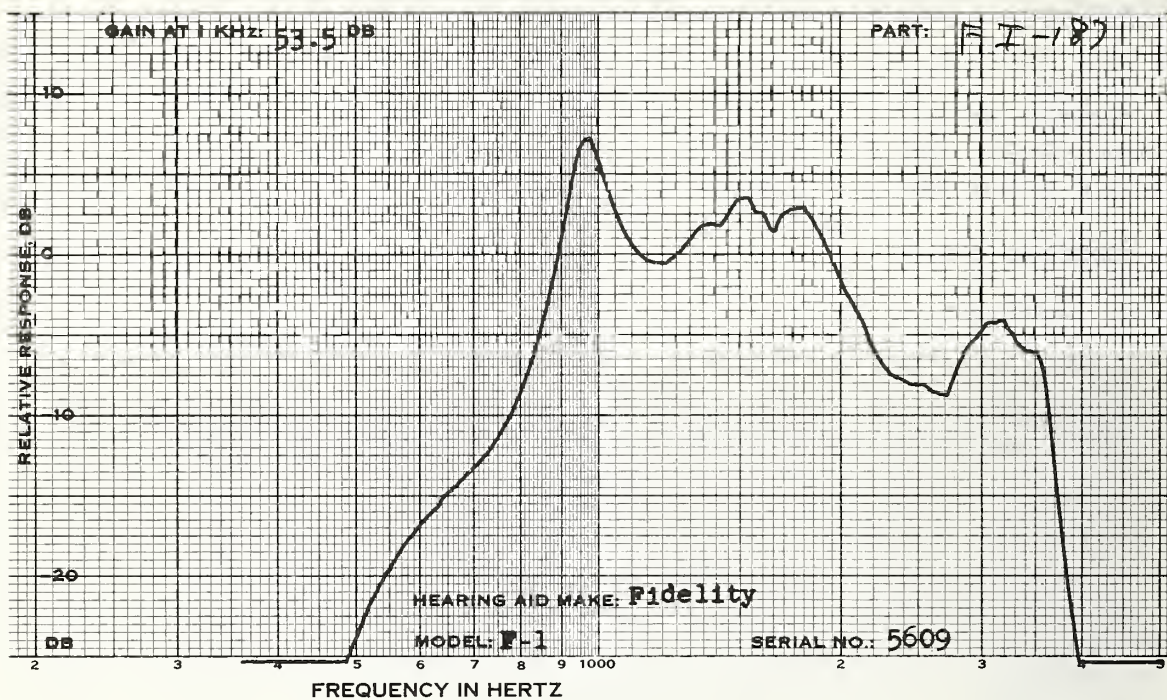
MEASUREMENTS WITH  
FULL VOL CONTROL

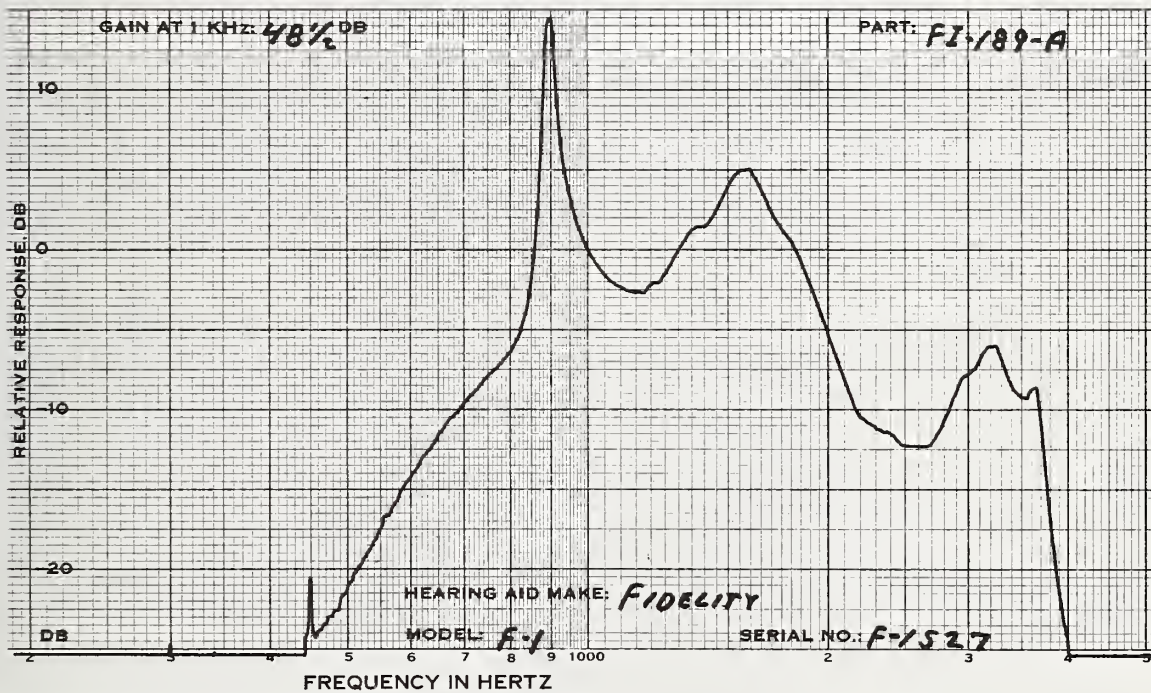
	FI-187	FI-188	FI189A
1KHZ GAIN DB	57.5	56.0	49.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.0	82.0	77.5
OUTPUT LEVEL DB	119.5	119.5	119.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

	FI-187	FI-188	FI189A
1KHZ GAIN DB	53.5	51.0	48.5
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	22 21	20 15	13 6
700 HZ %	2 6	2 8	2 1
900 HZ %	1 12	0 3	1 6
MAX DIST %	22 21	20 26	13 9
FREQ OF MAX DIS	500 500	500 1290	500 880
S/N RATIO DB			
1KHZ SIGNAL	52.0	49.0	50.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.0	.9
65 DB INPUT	1.0	1.0	.9
BATTERY VOLTAGE	1.57	1.57	1.57

FI-189, SERIAL # 5678, WAS CONSIDERED DEFECTIVE BECAUSE OF SEVERE FEEDBACK. THE GAIN HAD TO BE REDUCED CONSIDERABLY TO PREVENT FEEDBACK.







## FIDELITY

HP OE

MODEL:F38 TONE:N COMP:O TUBING:30MM BATTERY:S76

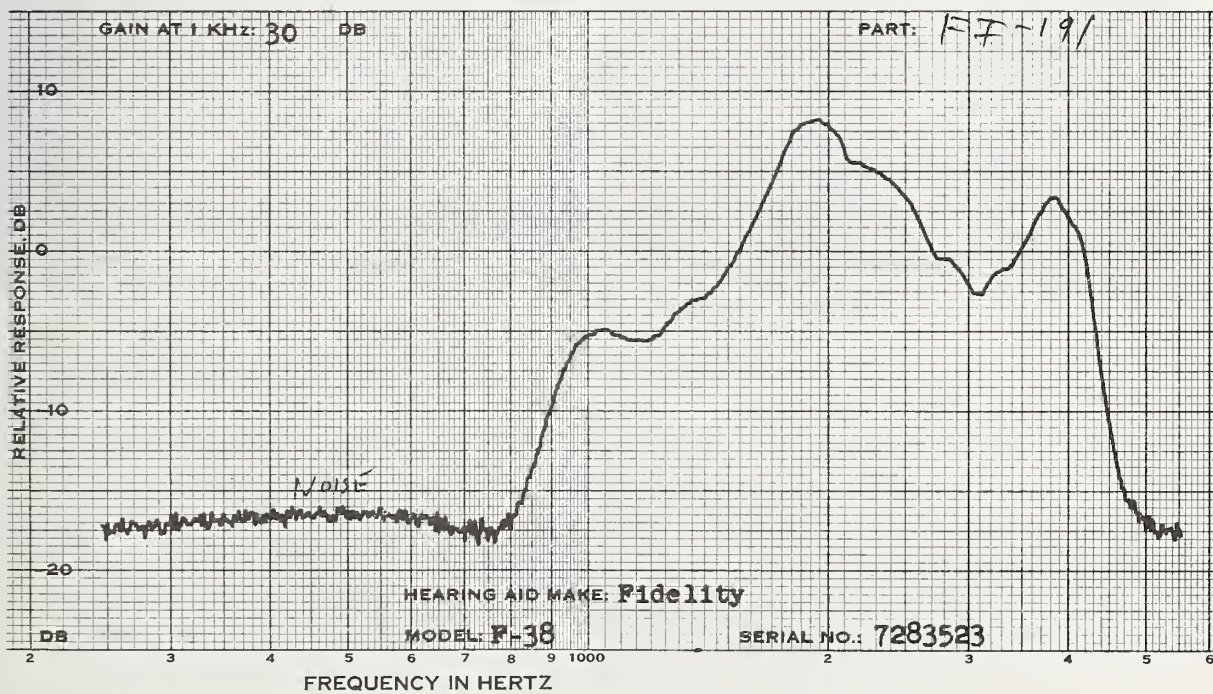
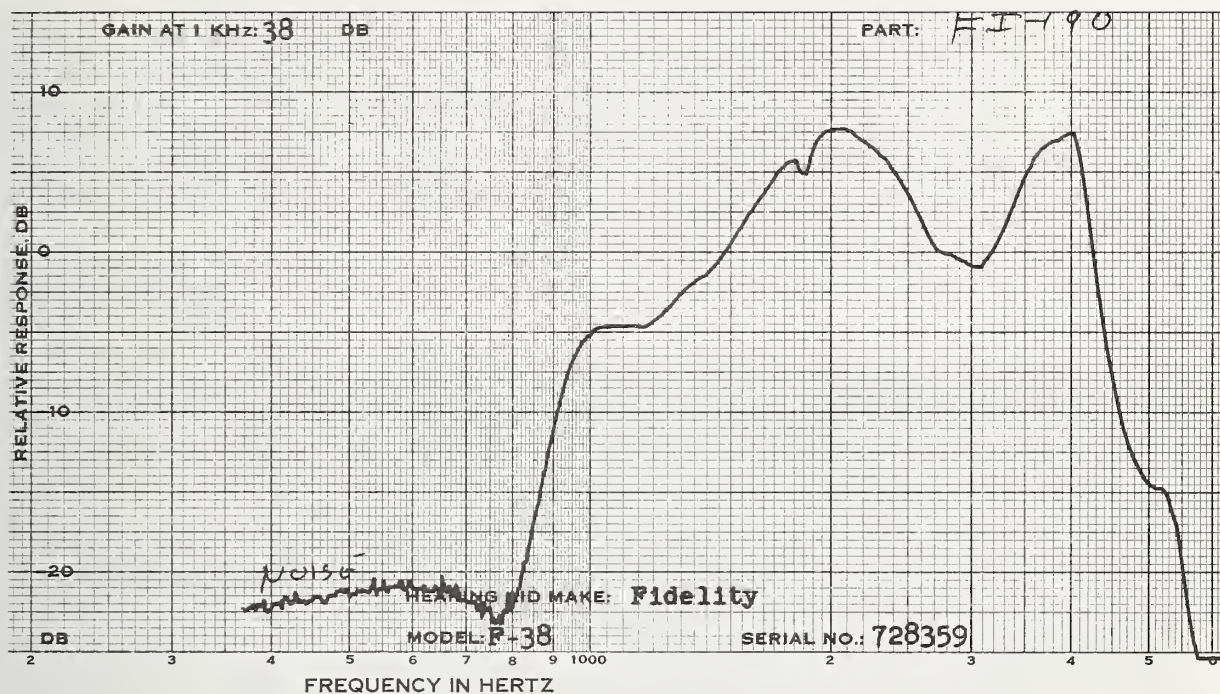
CODE	FI-190	FI-191	FI-192
SERIAL #	728359	7283523	728880
DATE		MAR 6, 1974	

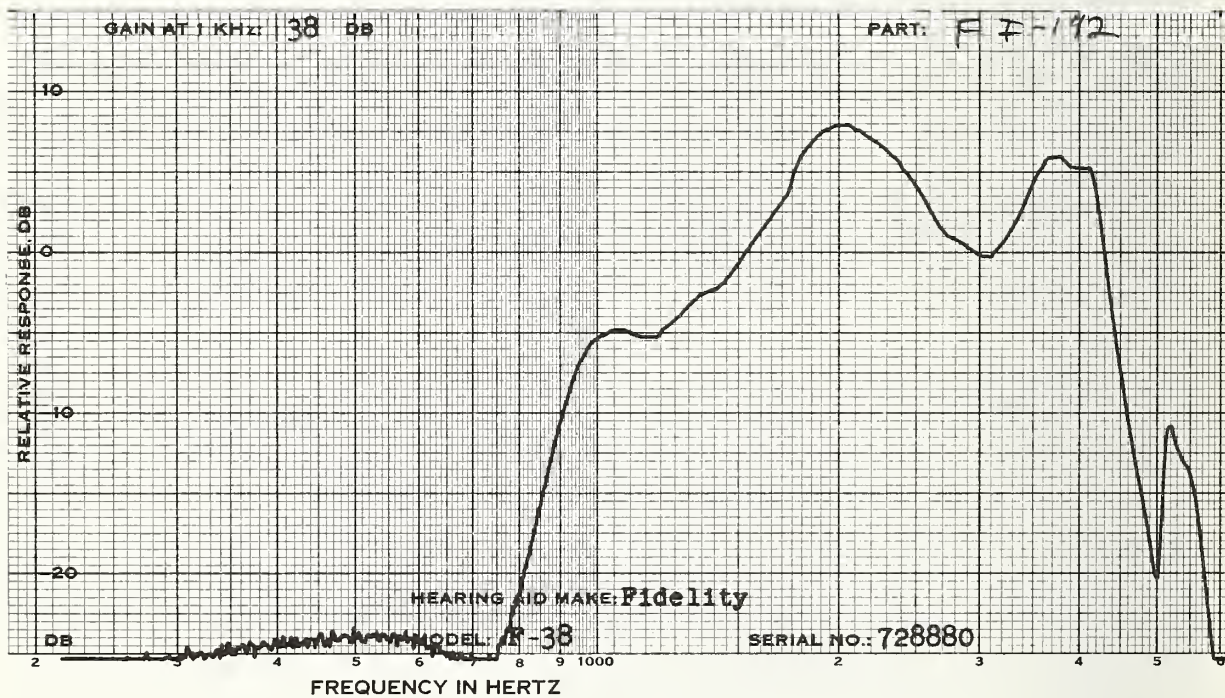
MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	41.0	30.0	40.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	90.0	91.0	92.0
OUTPUT LEVEL DB	115.5	113.0	115.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	38.0	30.0(FULL)	38.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	65.0 75.0	60.0 70.0
1000 HZ %	4 2	2 0	3 2
1500 HZ %	1 0	0 0	1 1
2000 HZ %	1 0	0 1	1 0
MAX DIST %	4 2	2 1	7 3
FREQ OF MAX DIS	1000 1000	1000 2000	1100 1100
S/N RATIO DB			
1KHZ SIGNAL	26.0	17.5	25.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.5	2.5	2.5
65 DB INPUT	2.5	2.5	2.5
BATTERY VOLTAGE	1.57	1.57	1.57
S/N 2KHZ	38.0	30.0	36.5







## FIDELITY

HP OE

MODEL:F39 TONE:N PC:+ TUBING:30MM BATTERY:S76

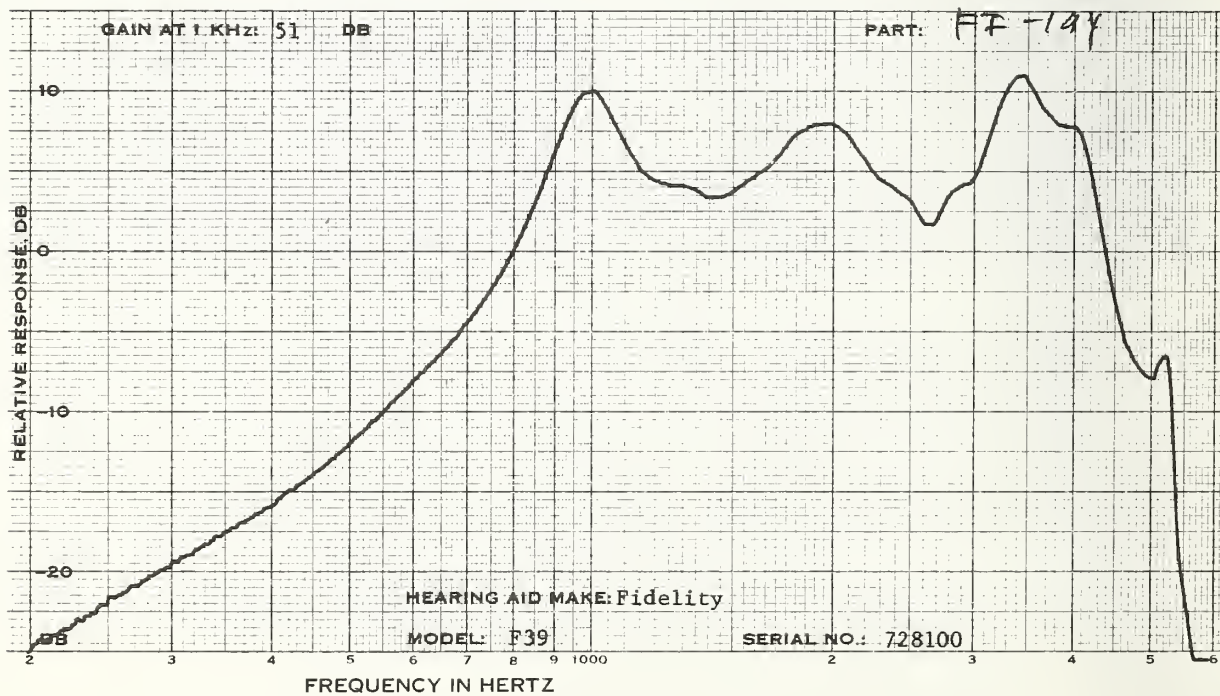
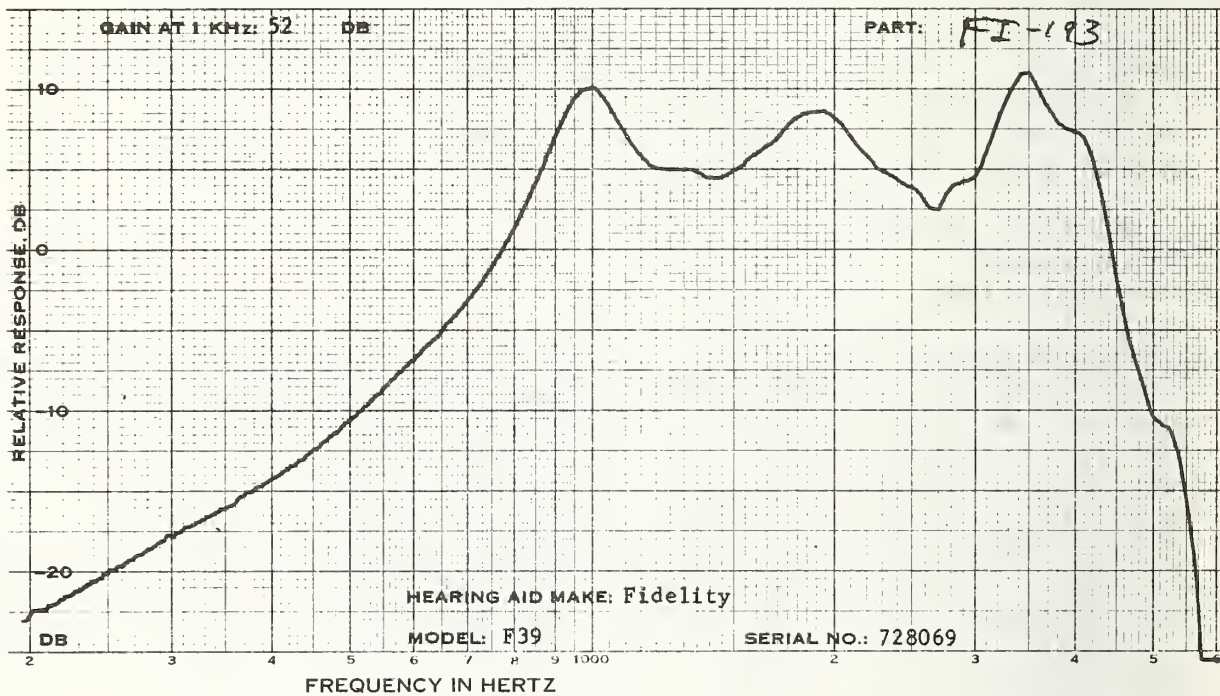
CODE	FI-193	FI-194	FI-195
SERIAL #	728069	728100	728369
DATE		MAR 8, 1974	

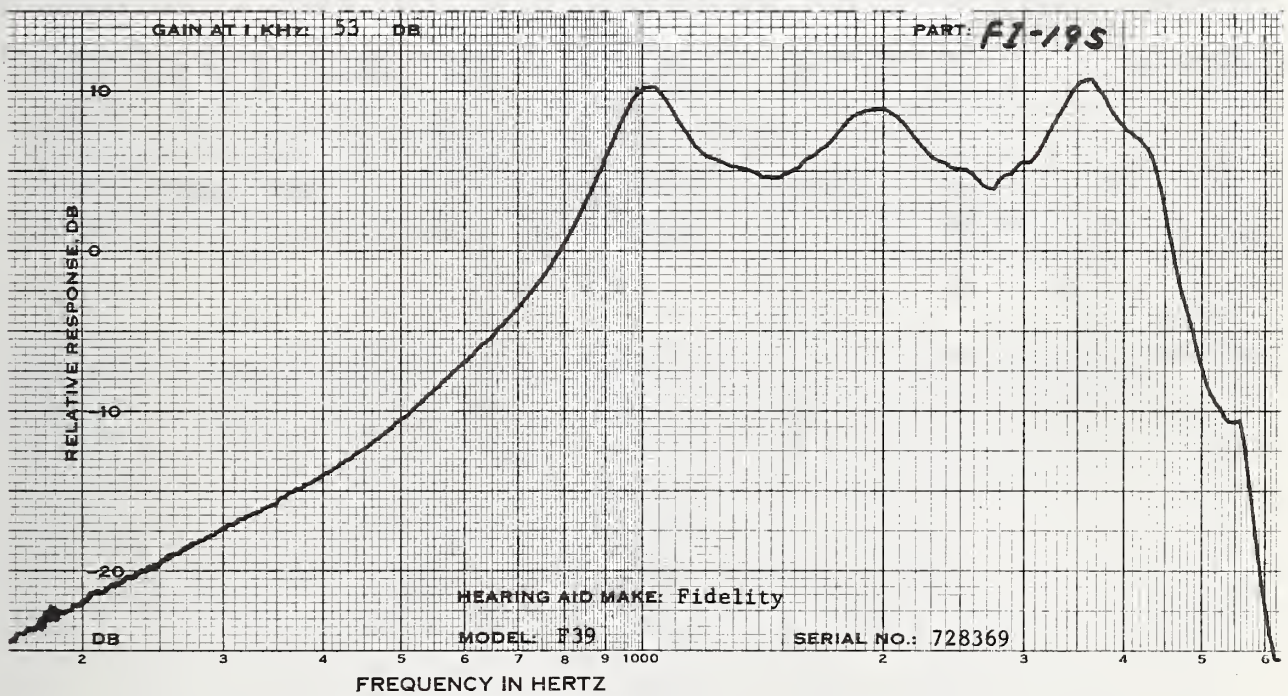
MEASUREMENTS WITH  
FULL VOL CONTROL

	FI-193	FI-194	FI-195
1KHZ GAIN DB	62.0	62.0	63.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	78.0	74.0	74.0
OUTPUT LEVEL DB	118.0	119.0	119.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

	FI-193	FI-194	FI-195
1KHZ GAIN DB	52.0	51.0	53.0
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
1000 HZ %	1 2	0 1	0 2
1500 HZ %	1 2	1 2	1 3
2000 HZ %	1 2	1 2	1 2
MAX DIST %	1 2	1 2	1 3
FREQ OF MAX DIS	2000 2000	2000 2000	1750 1790
S/N RATIO DB			
1KHZ SIGNAL	46.0	55.5	43.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.4	2.5	2.3
65 DB INPUT	2.5	2.6	2.4
BATTERY VOLTAGE	1.56	1.57	1.57
S/N 2KHZ	43.5	43.0	41.5







## FIDELITY

MODEL:F39LFE TONE:N PC:+ TUBING:30MM SPEC OE BATTERY:S76

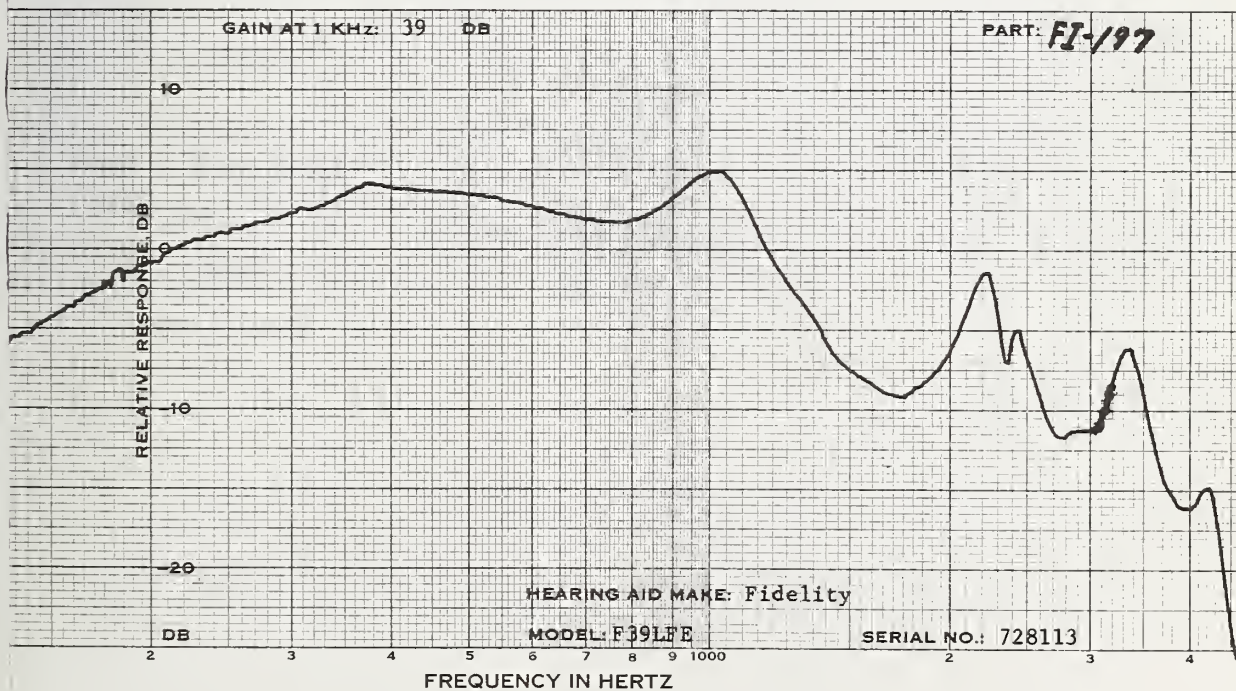
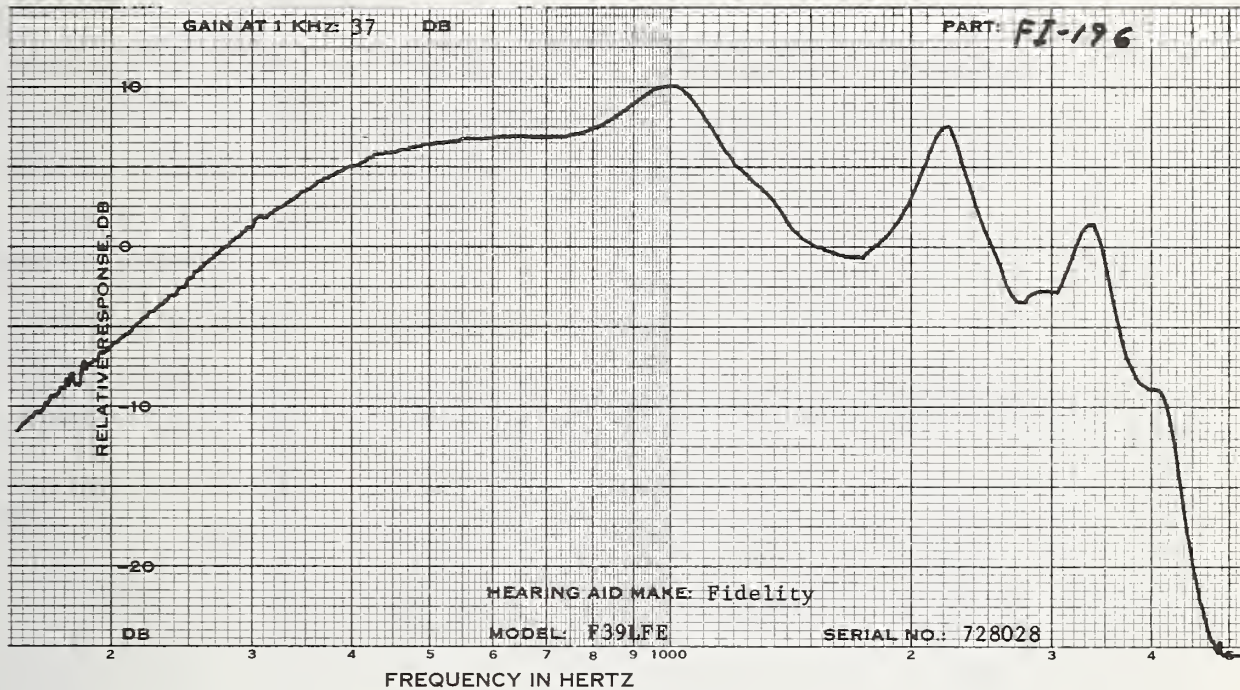
CODE	FI-196	FI-197	FI-198
SERIAL #	728028	728113	728119
DATE		MAR 8, 1974	

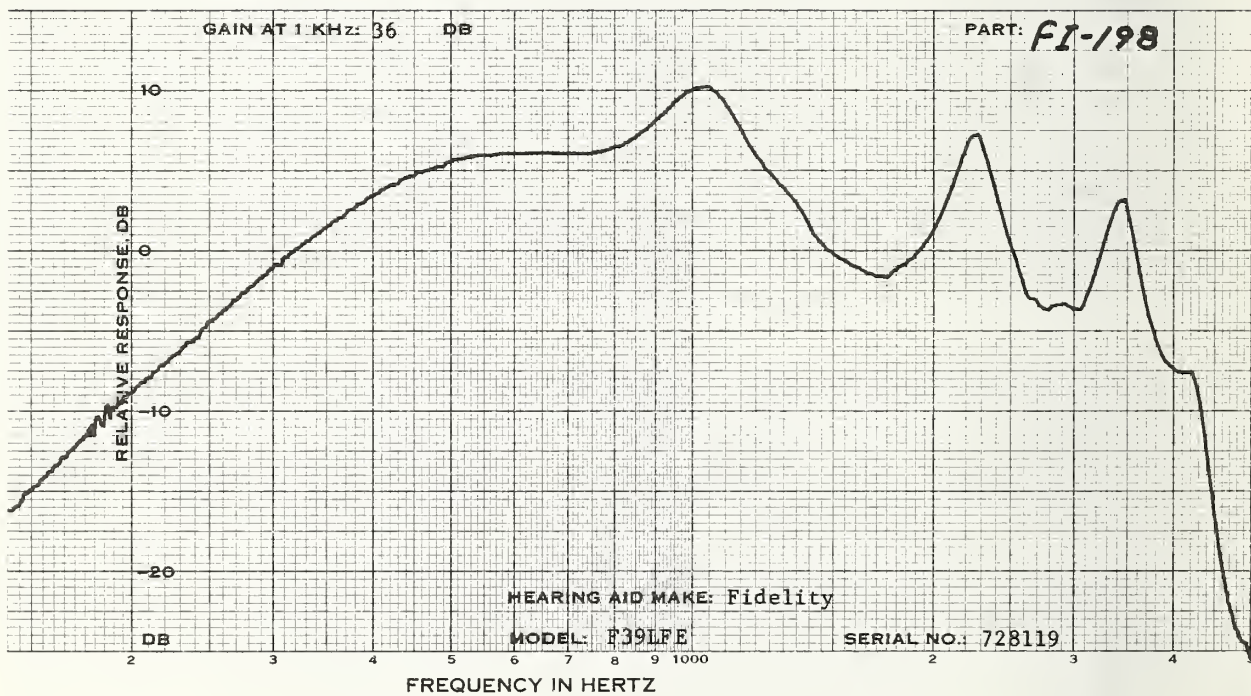
MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	46.0	49.0	45.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	90.0	71.0	78.0
OUTPUT LEVEL DB	103.5	106.5	101.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	37.0	39.0	36.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 2	3 5	1 2
700 HZ %	0 1	1 2	0 1
900 HZ %	0 1	1 1	0 1
MAX DIST %	2 2	3 5	2 6
FREQ OF MAX DIS	500 500	500 500	1640 1680
S/N RATIO DB			
1KHZ SIGNAL	42.0	37.5	42.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.5	2.5	2.3
65 DB INPUT	2.7	2.7	2.5
BATTERY VOLTAGE	1.57	1.57	1.57







FIDELITY  
MODEL:F175 TONE:NONE TUBING:30MM BATTERY:675 OE

CODE	FI-199	FI-200	FI-201
SERIAL #	13205	13354	13237
DATE		MAR 11, 1974	

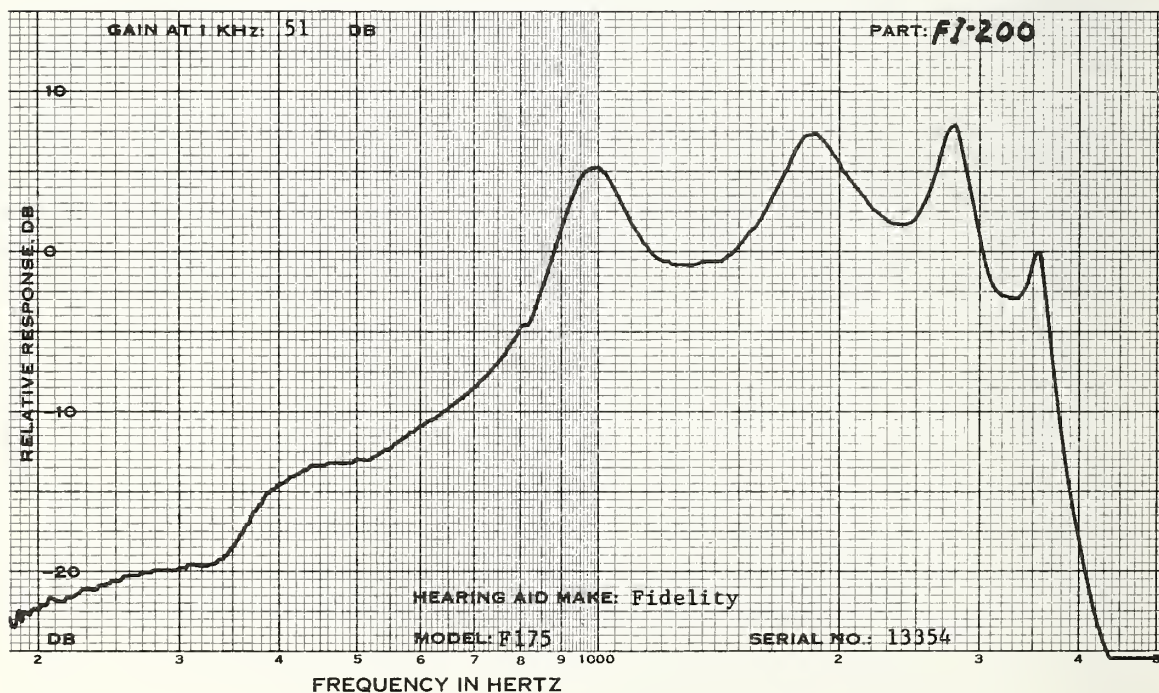
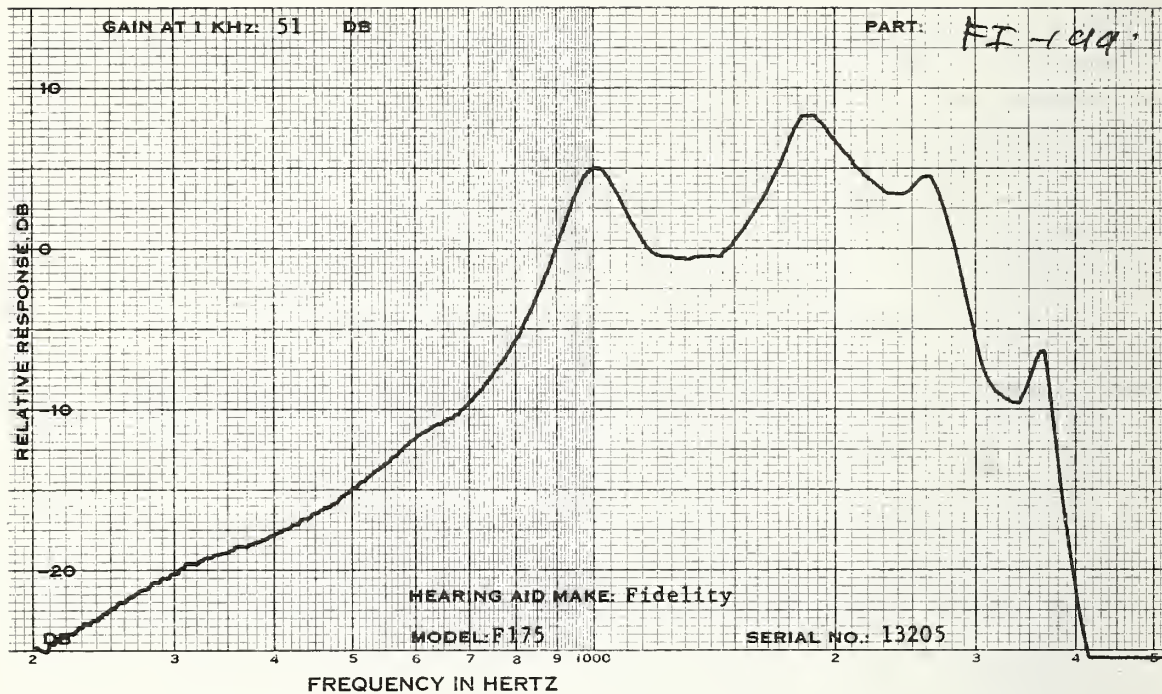
MEASUREMENTS WITH  
FULL VOL CONTROL

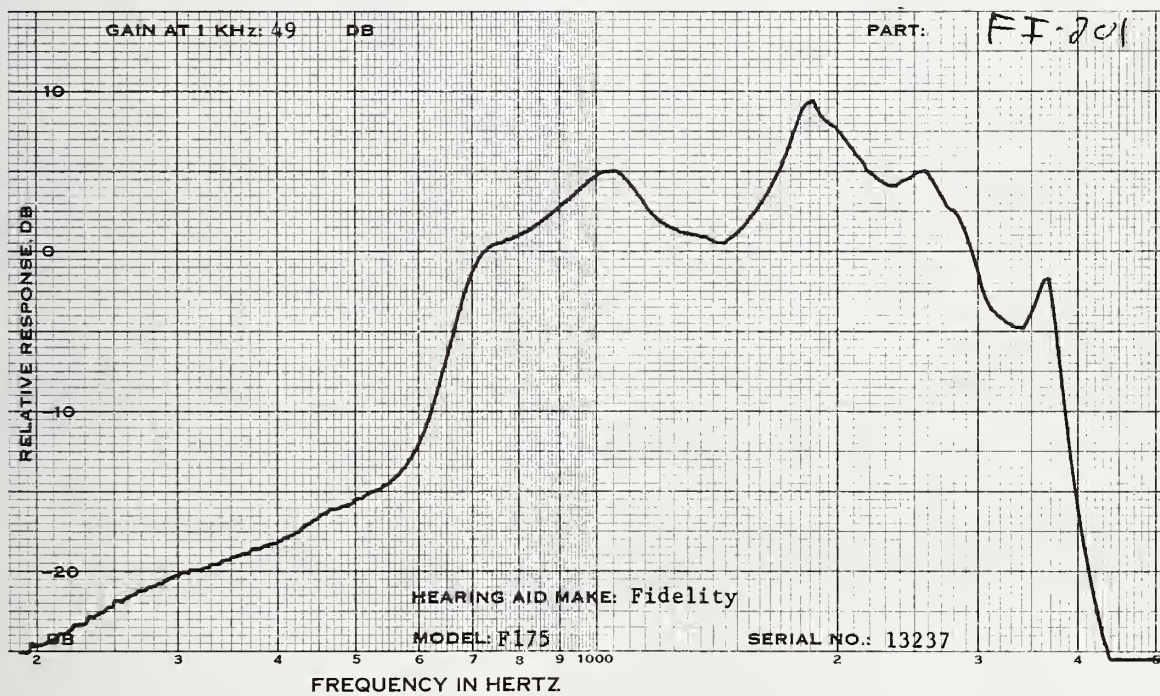
1KHZ GAIN DB	58.0	51.0	52.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	72.0	87.0	77.0
OUTPUT LEVEL DB	118.0	118.0	117.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	51.0	51.0(FULL)	49.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	16 43	17 82	17 36
700 HZ %	4 10	5 23	9 33
900 HZ %	3 8	3 19	1 11
MAX DIST %	16 43	17 82	17 36
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	45.0	44.5	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	*****	*****
65 DB INPUT	.9	*****	*****
BATTERY VOLTAGE	1.44	*****	*****

THE BATTERY DRAIN WAS NOT MEASURED FOR TWO INSTRUMENTS  
OF THIS MODEL BECAUSE THE BATTERY HOLDER MUST BE REMOVED  
IN ORDER TO MEASURE THE DRAIN.







## FIDELITY

OB

MODEL:F364 TONE:SEE BELOW RECEIVER:PP BATTERIES:401(2)

CODE	FI-202	FI-203	FI-204
SERIAL #	334581	334771	334884
DATE		MAR 11, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

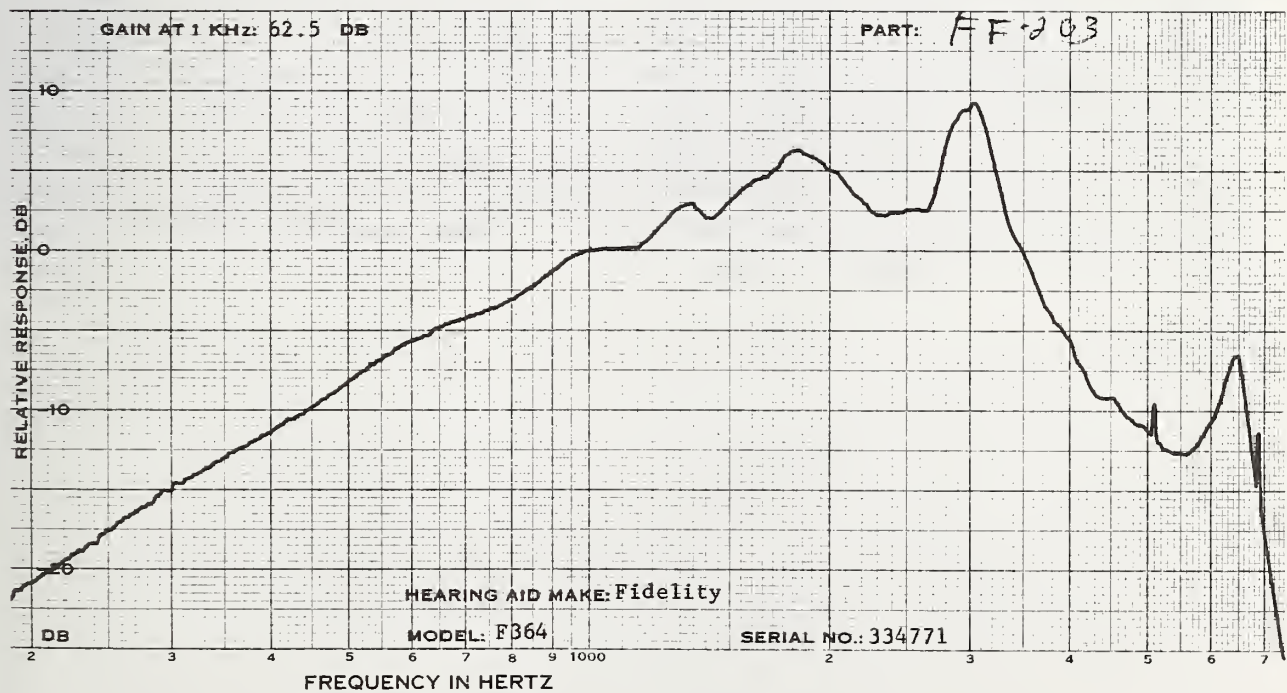
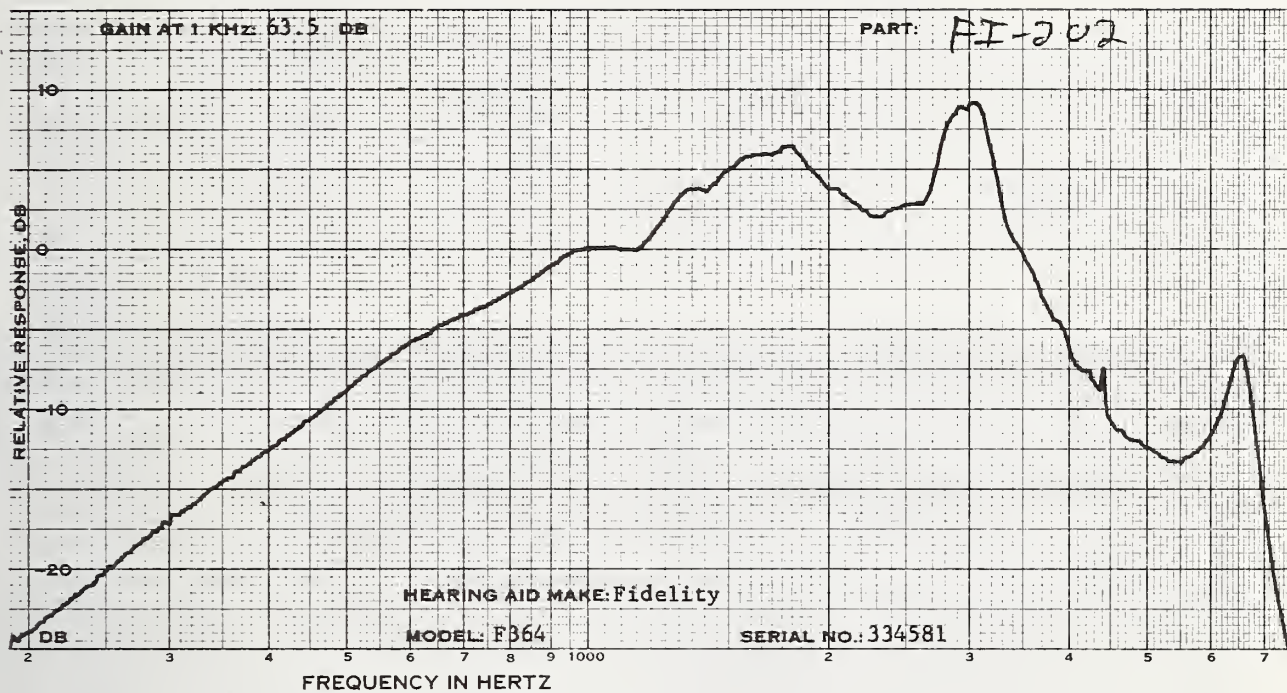
1KHZ GAIN DB	74.5	76.0	75.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	72.0	69.0	73.0
OUTPUT LEVEL DB	135.5	135.0	135.0

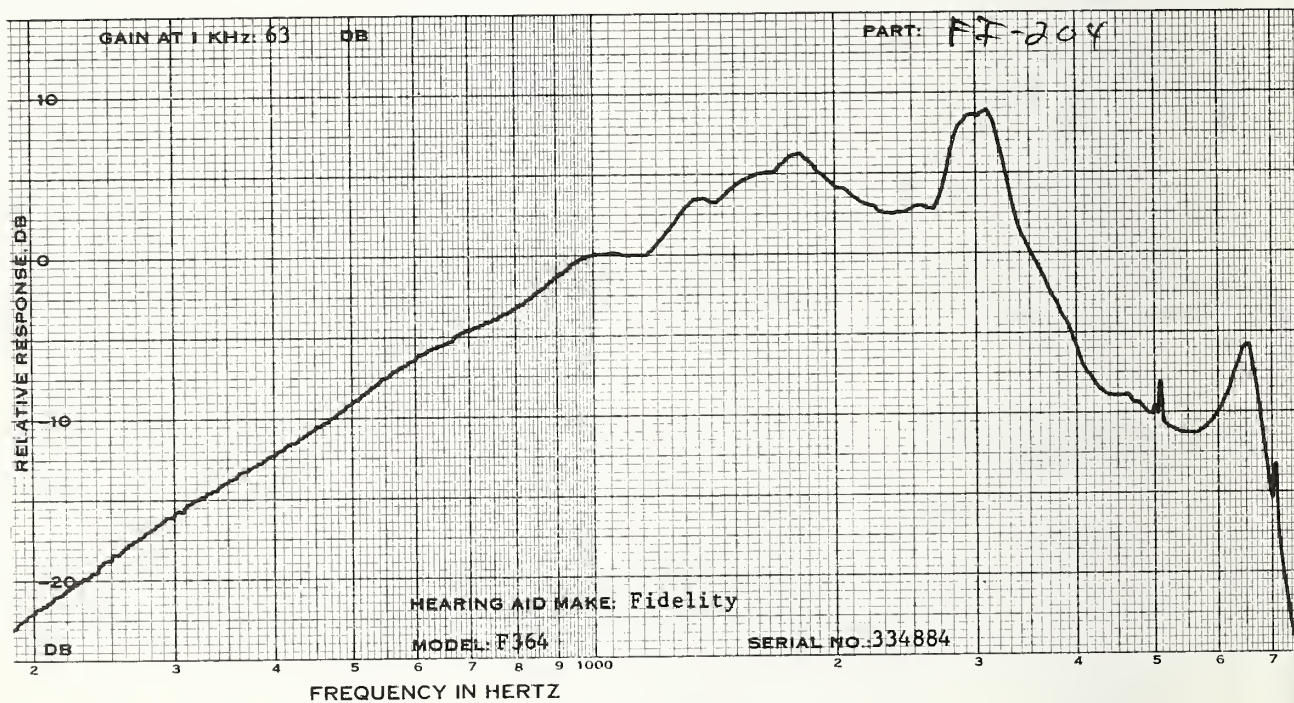
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	63.5	62.5	63.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	8 8	5 6	6 6
700 HZ %	8 33	5 10	6 8
900 HZ %	8 29	6 11	6 9
MAX DIST %	8 38	6 11	6 9
FREQ OF MAX DIS	500 810	900 900	900 900
S/N RATIO DB			
1KHZ SIGNAL	39.0	40.0	39.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	6.7 6.7	9.0 9.0	7.5 7.5
65 DB INPUT	23.0 23.0	22.5 22.5	21.0 21.0
BATTERY VOLTAGE	1.41 1.41	1.42 1.41	1.42 1.41

EXT TONE:H INT TONE:N PEAK CLIPPING:0 COMP:0 VOLT:3

FI-202, SERIAL # 334581, WITH INPUTS BELOW 700 HZ, AND WITH AN INPUT LEVEL OF 70 DB, INTERMITTANTLY BROKE INTO A SUBHARMONIC DISTORTION OF ONE-HALF THE INPUT FREQUENCY.







FIDELITY  
 MODEL:F499 TONE:N PC:+ TUBING:30MM BATTERY:675 EG

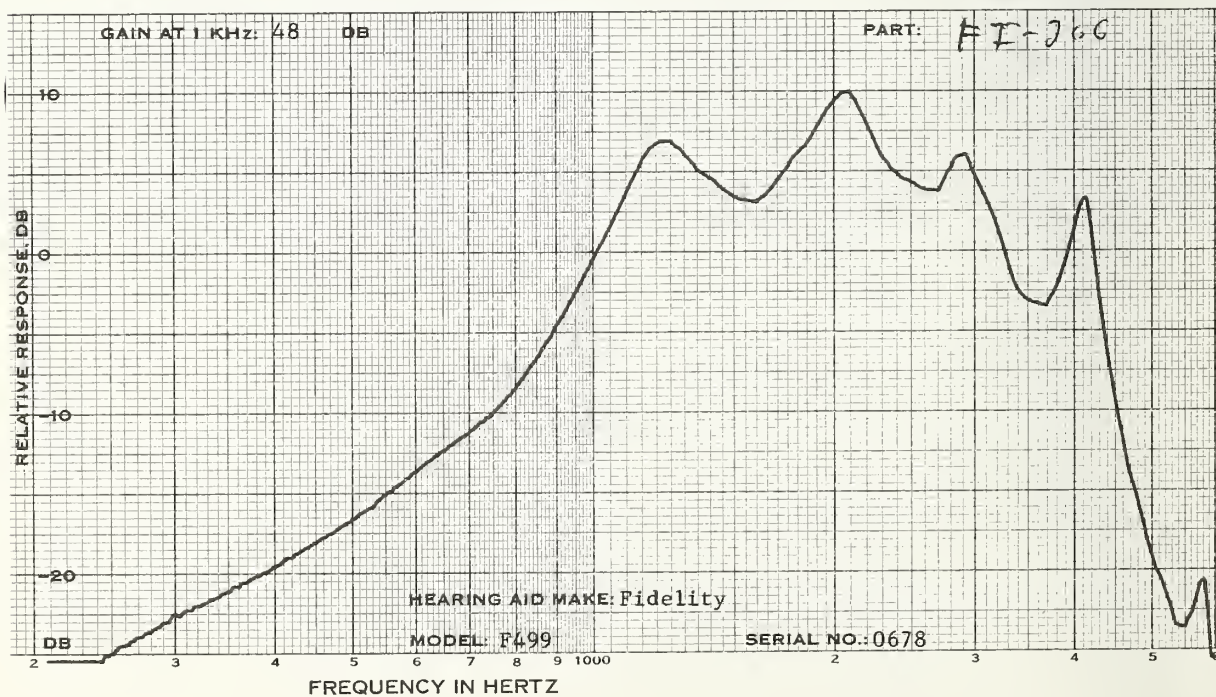
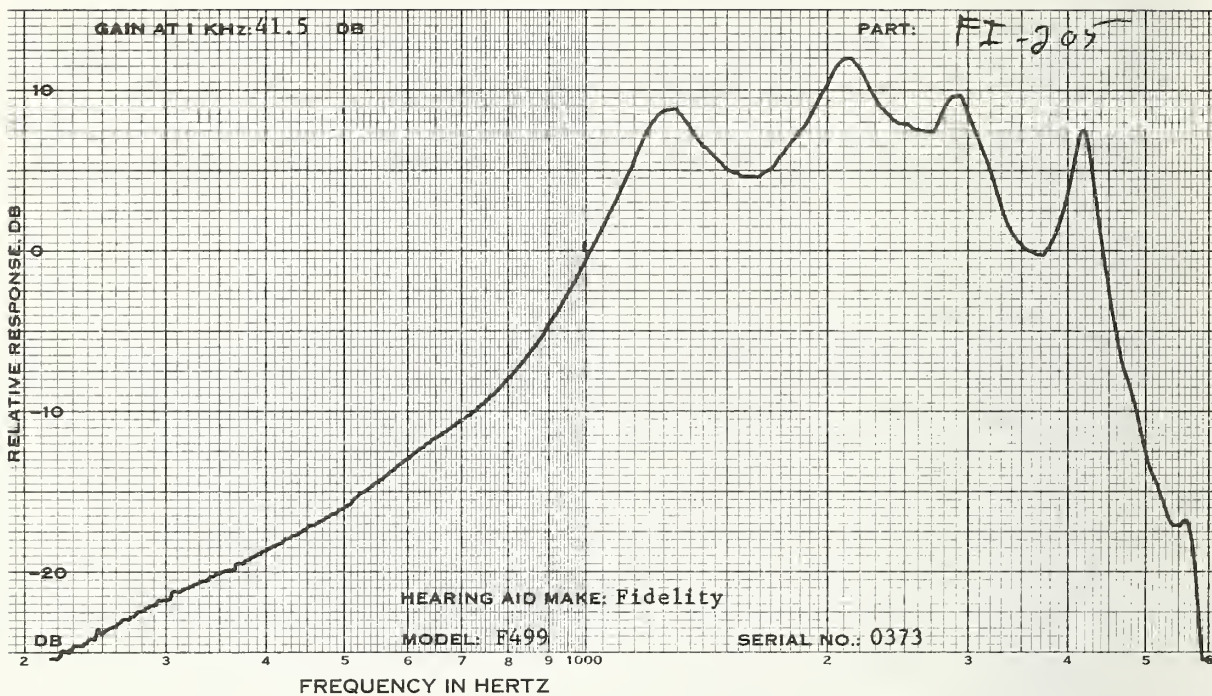
CODE	FI-205	FI-206	FI-207
SERIAL #	0373	0678	0781
DATE		MAR 11, 1974	

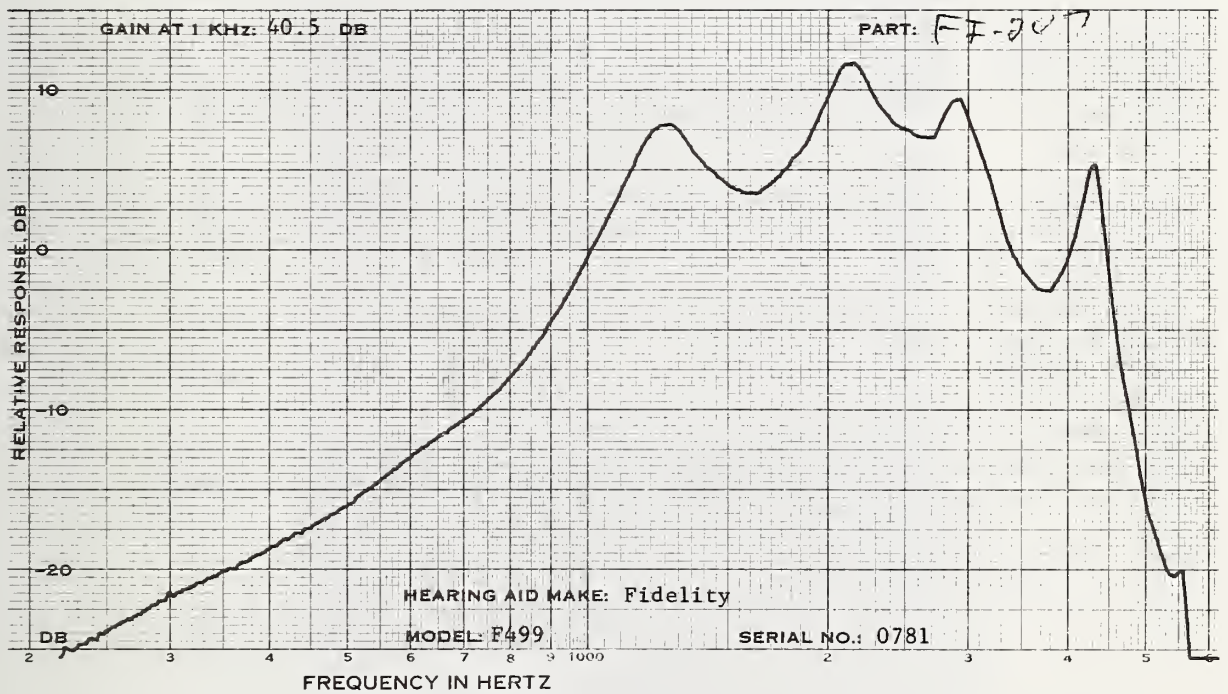
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	55.0	59.5	53.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	72.0	71.0
OUTPUT LEVEL DB	117.0	122.0	116.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	41.5	48.0	40.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	9 16	7 14	9 14
700 HZ %	11 24	8 18	8 18
900 HZ %	7 15	5 12	4 9
MAX DIST %	15 37	10 29	10 25
FREQ OF MAX DIS	640 640	610 610	640 630
S/N RATIO DB			
1KHZ SIGNAL	38.0	39.5	38.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.1	2.0	1.8
65 DB INPUT	2.1	2.2	1.9
BATTERY VOLTAGE	1.35	1.37	1.36







LEHR

OB

MODEL:111F TONE:SEE BELOW RECEIVER:D7 BATTERY:401

CODE	LE-079	LE-080	LE-081
SERIAL #	3305271	3305274	3305285
DATE		JAN 24, 1974	

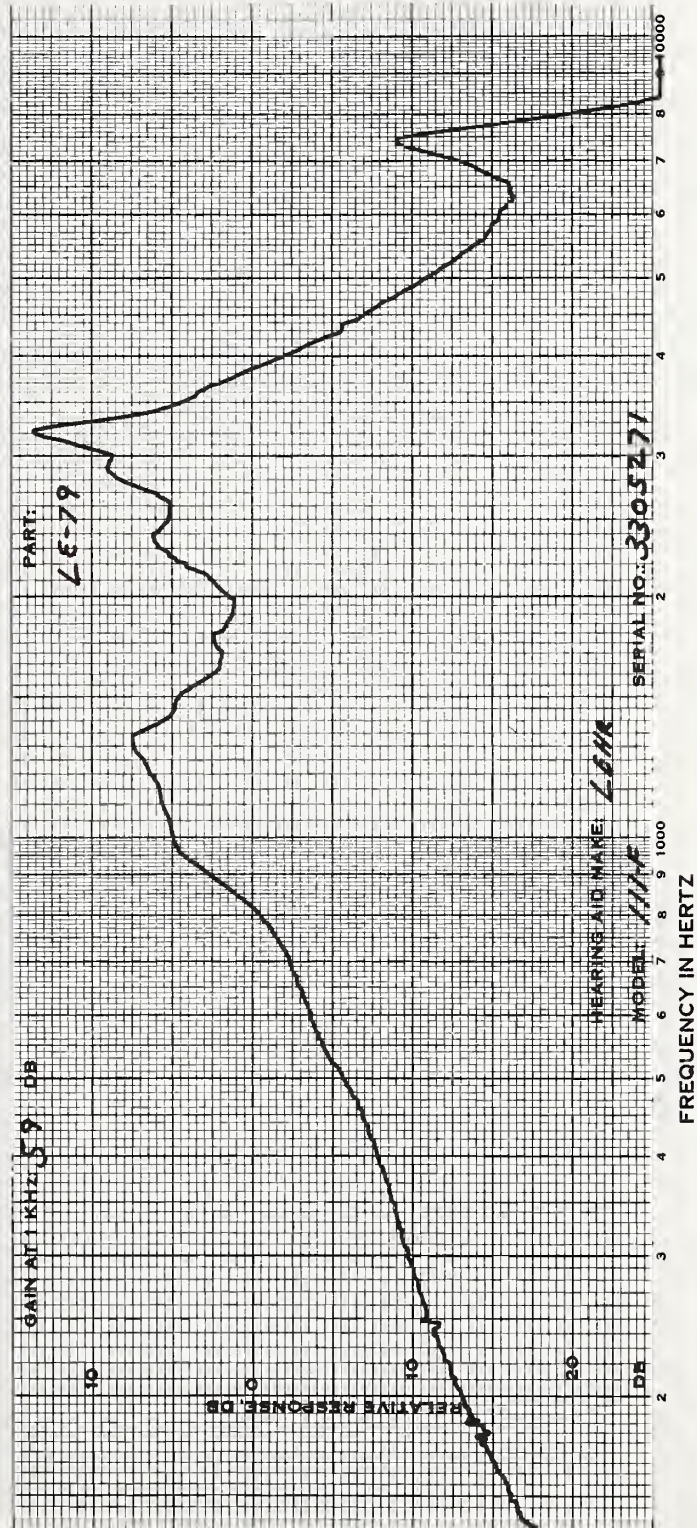
MEASUREMENTS WITH  
FULL VOL CONTROL

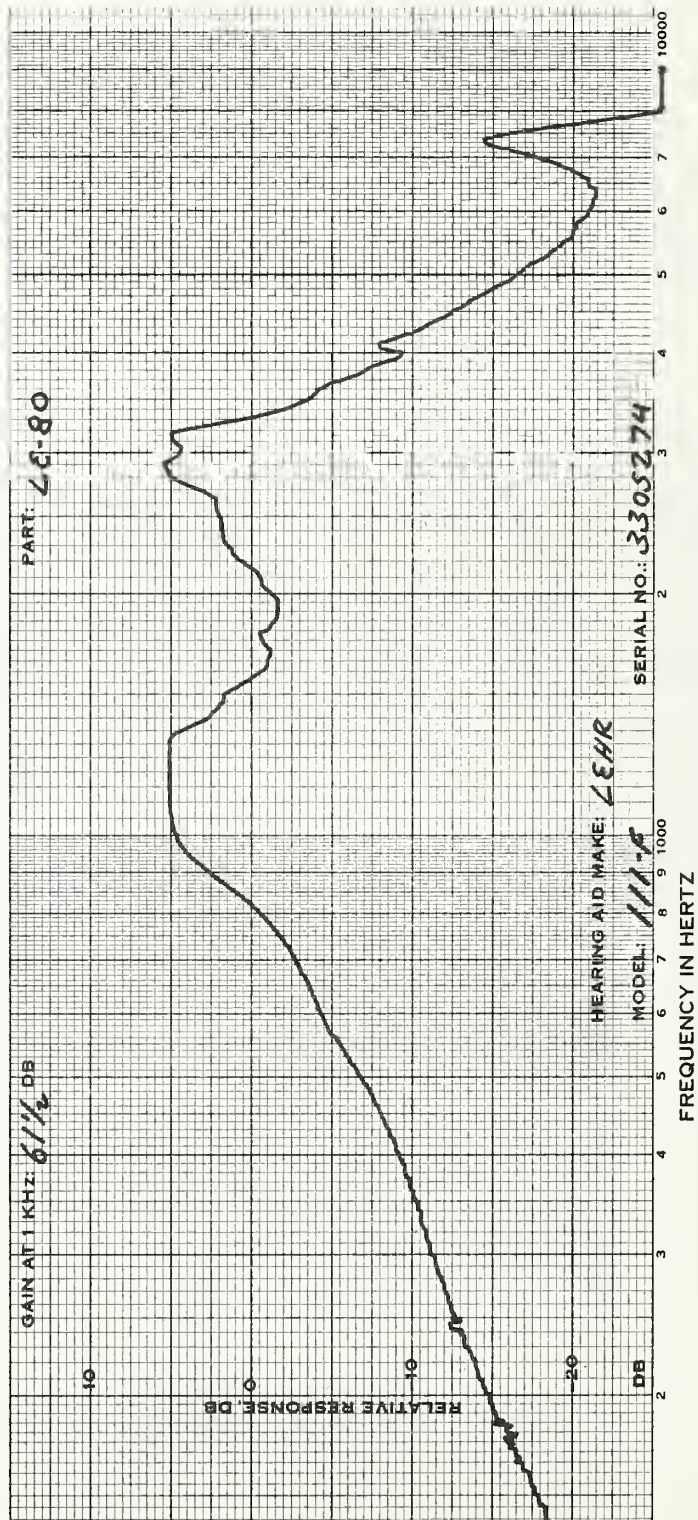
1KHZ GAIN DB	70.5	72.0	71.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	70.0	71.0	72.0
OUTPUT LEVEL DB	129.0	130.0	130.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	59.0	61.5	59.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 8	7 8	8 10
700 HZ %	4 6	2 3	4 5
900 HZ %	1 2	1 3	2 3
MAX DIST %	6 8	7 8	8 10
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	43.5	46.0	45.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	5.8	6.4	6.0
65 DB INPUT	10.5	11.0	11.0
BATTERY VOLTAGE	1.40	1.40	1.38

GC: CW PC: CCW LNH: CCW









LEHR  
 MODEL:112 TONE:SEE BELOW RECEIVER:L120 BATTERIES:401(2) DB

CODE	LE-082	LE-083	LE-084
SERIAL #	3261692	3272694	3273370
DATE		JAN 25, 1974	

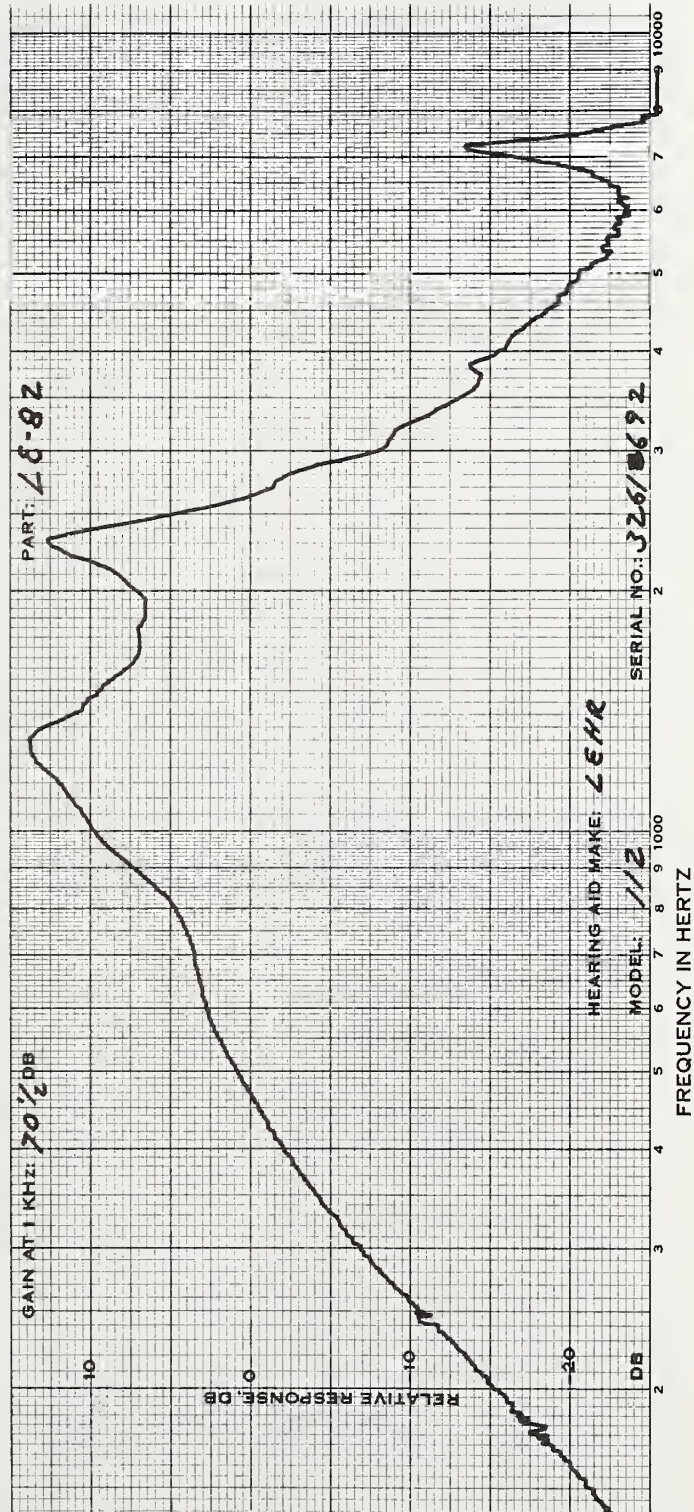
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	85.5	85.5	86.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	70.5	69.0	67.0
OUTPUT LEVEL DB	140.0	139.0	139.0

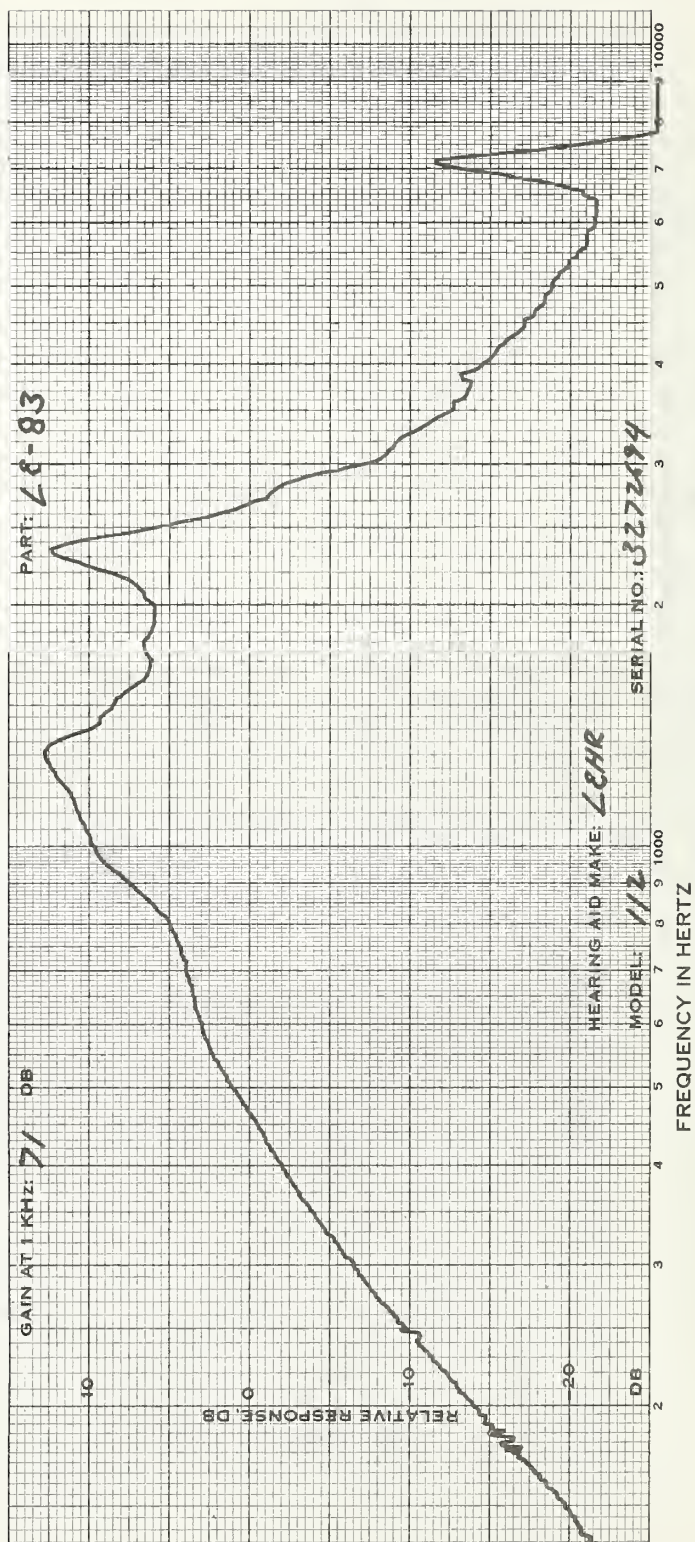
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

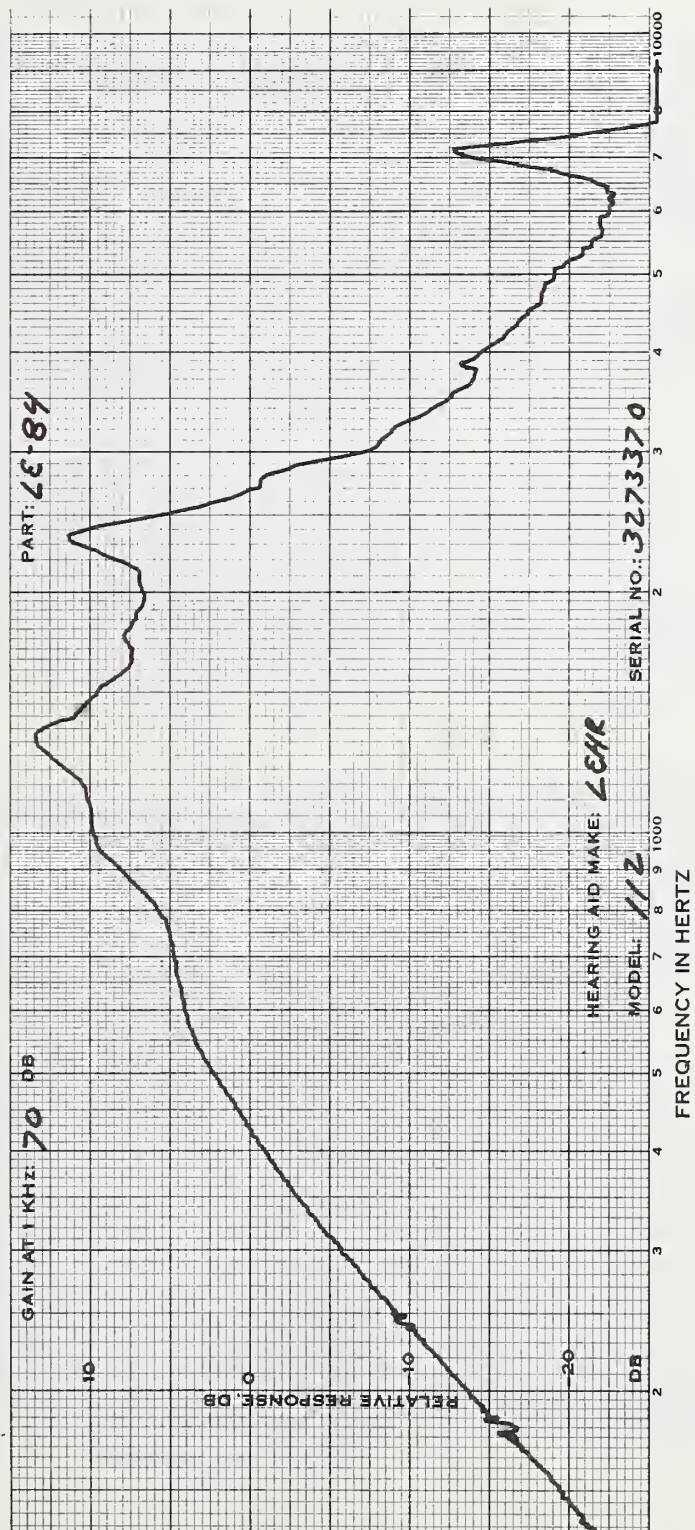
1KHZ GAIN DB	70.5	71.0	70.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	7 9	2 9	3 8
700 HZ %	3 8	2 8	2 6
900 HZ %	0 1	0 1	0 1
MAX DIST %	7 16	2 14	3 10
FREQ OF MAX DIS	500 610	500 620	500 620
S/N RATIO DB			
1KHZ SIGNAL	45.0	45.0	46.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	6.3 6.3	6.0 6.0	6.7 6.7
65 DB INPUT	18.0 18.0	18.0 18.0	18.5 18.5
BATTERY VOLTAGE	1.37 1.37	1.38 1.37	1.37 1.37

GC: CW PC: CCW LNH: CW









LEHR  
 MODEL:\*6ST TONE: CW TUBING: 1 1/4 BATTERY: 675 OE

CODE	LE-085	LE-086	LE-087
SERIAL #	3307017	3307040	3307051
DATE		JAN 19, 1974	

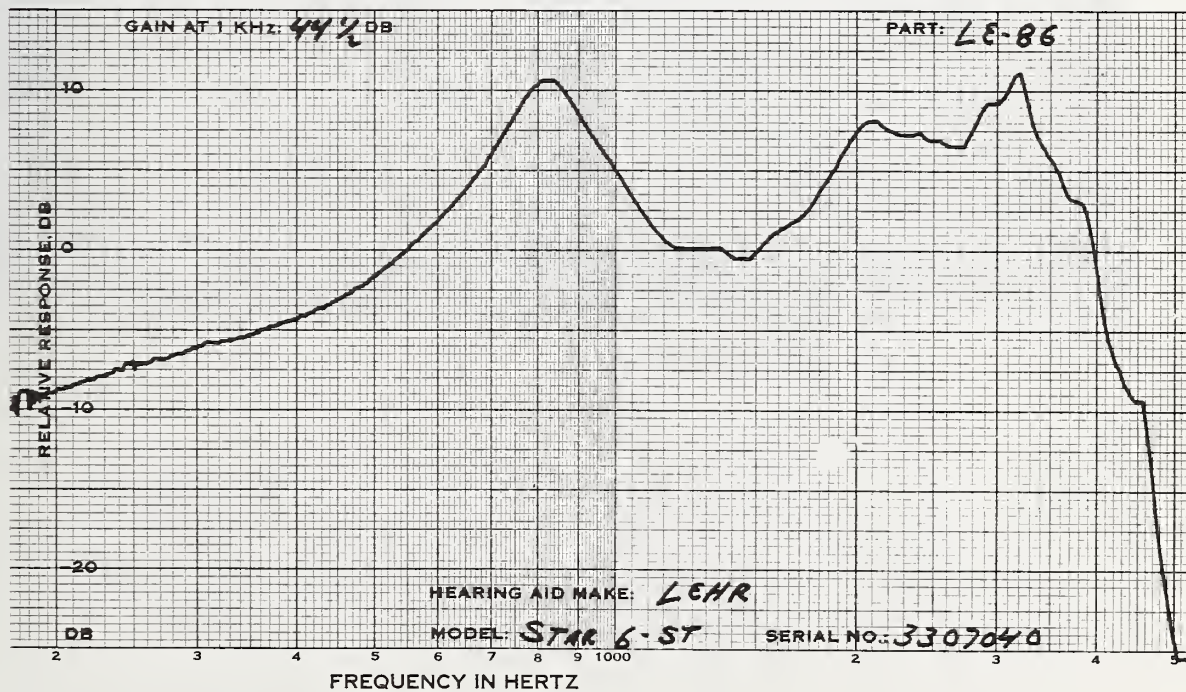
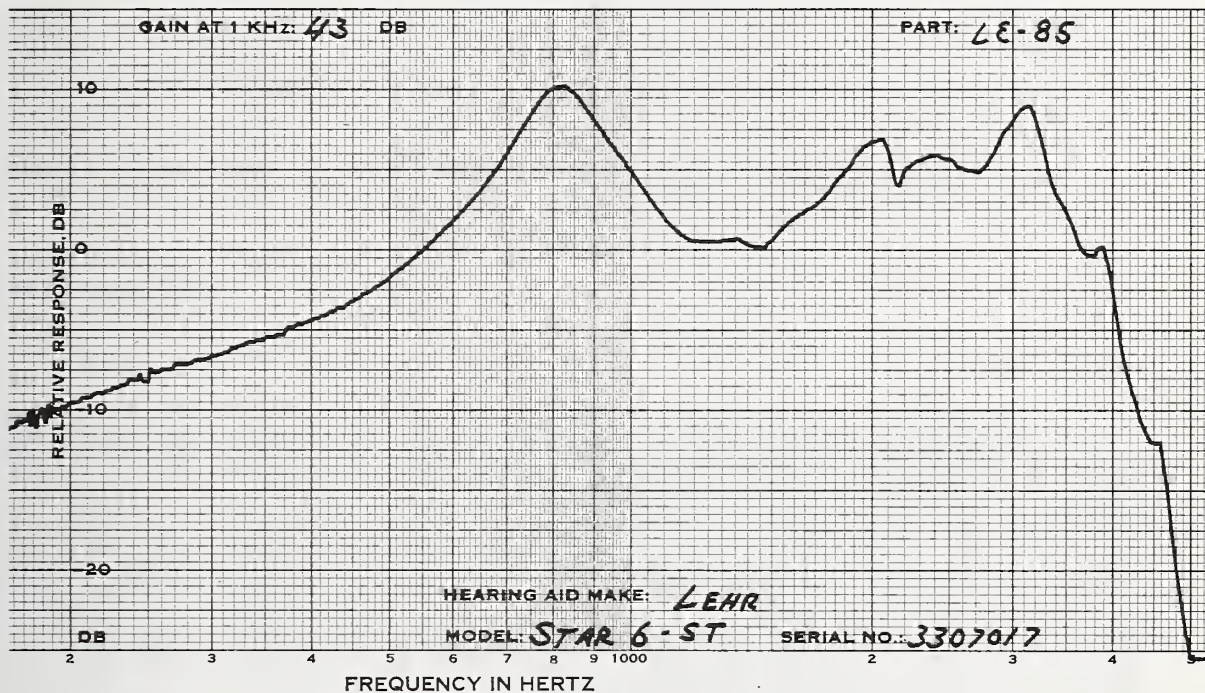
MEASUREMENTS WITH  
 FULL VOL CONTROL

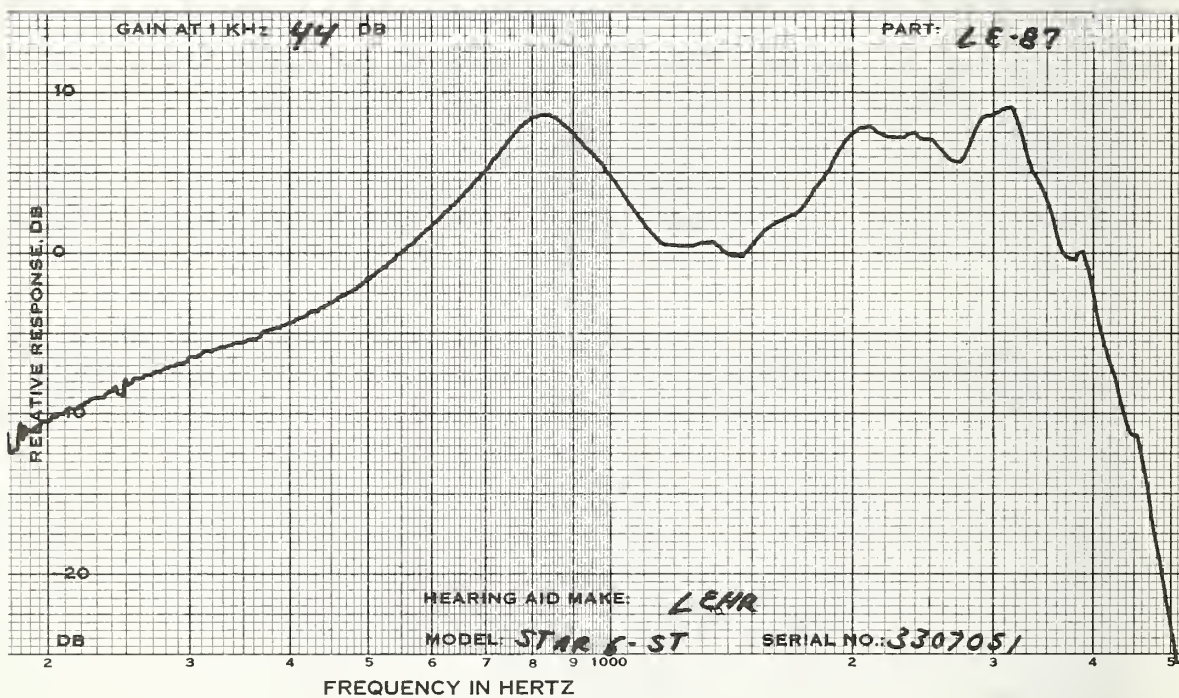
1KHZ GAIN DB	43.0	44.5	44.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	80.0	81.0
OUTPUT LEVEL DB	120.0	121.0	121.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	43.0(FULL)	44.5(FULL)	44.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	66.0 76.0	64.5 74.5	65.5 75.5
500 HZ %	3 6	3 9	3 8
700 HZ %	1 2	1 2	1 2
900 HZ %	1 2	1 2	1 2
MAX DIST %	3 12	5 26	3 21
FREQ OF MAX DIS	500 1590	1580 1570	500 1570
S/N RATIO DB			
1KHZ SIGNAL	42.5	41.5	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.8	1.8	1.9
65 DB INPUT	1.8	1.8	1.9
BATTERY VOLTAGE	1.35	1.36	1.37







LEHR  
 MODEL:\*6H TONE: CW PC: CW TUBING: 1 1/4 BATTERY: 675

OE

CODE	LE-088	LE-089	LE-090
SERIAL #	3254658	3274696	3254940
DATE		JAN 24, 1974	

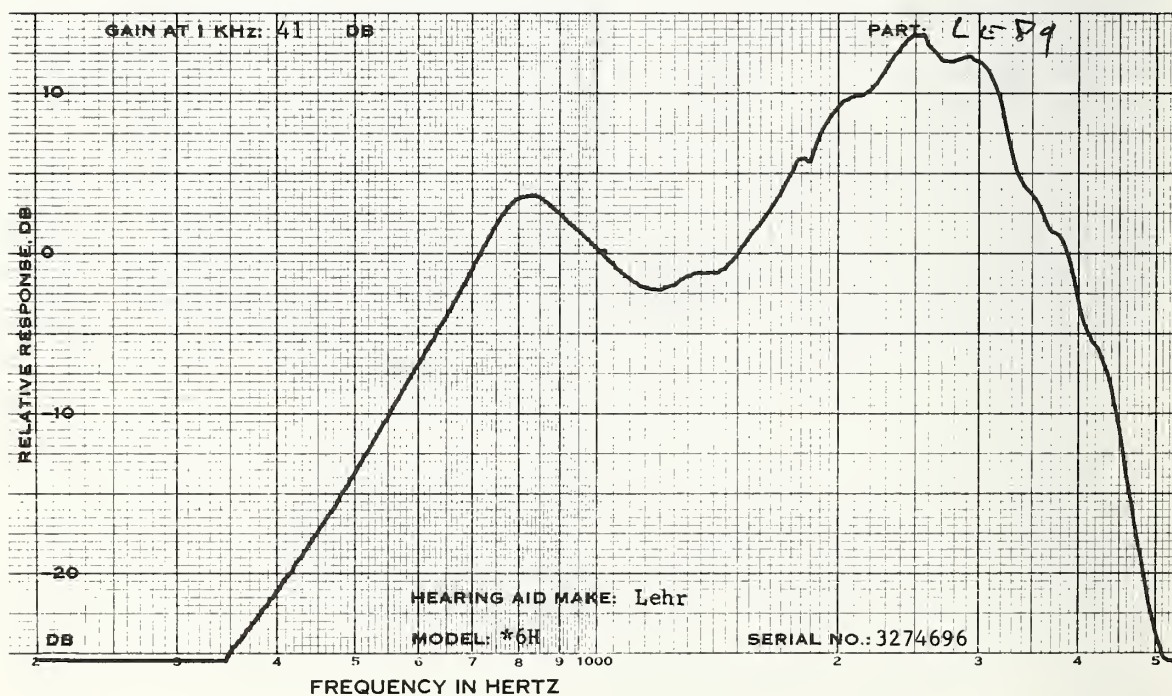
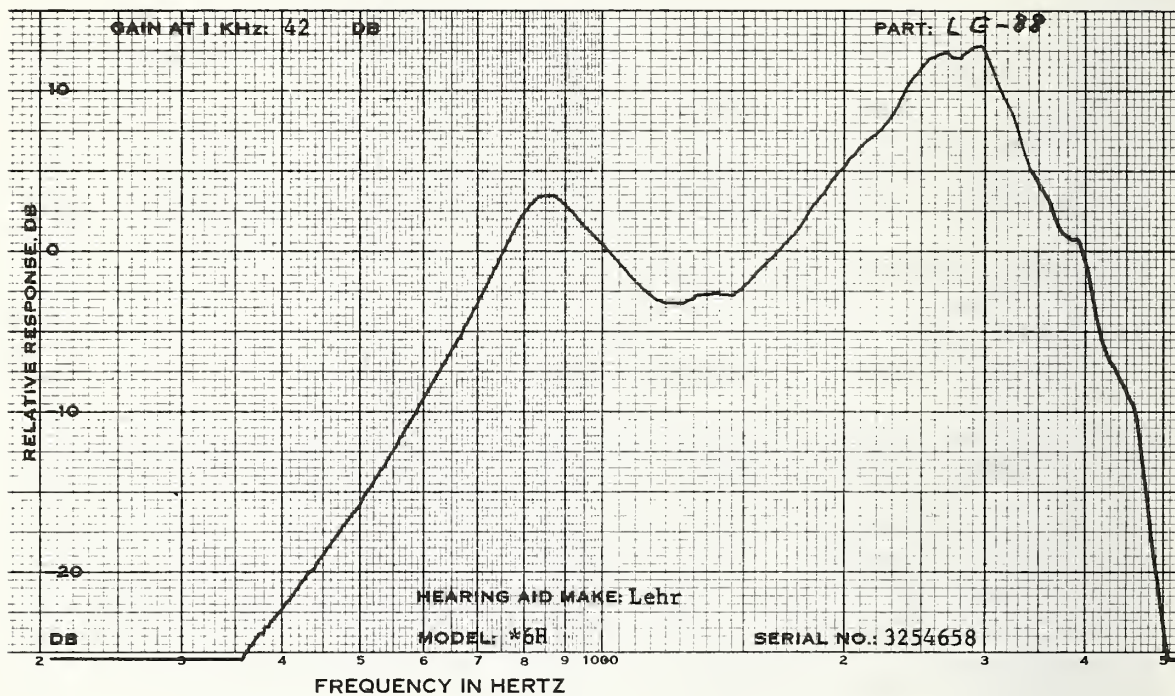
MEASUREMENTS WITH  
 FULL VOL CONTROL

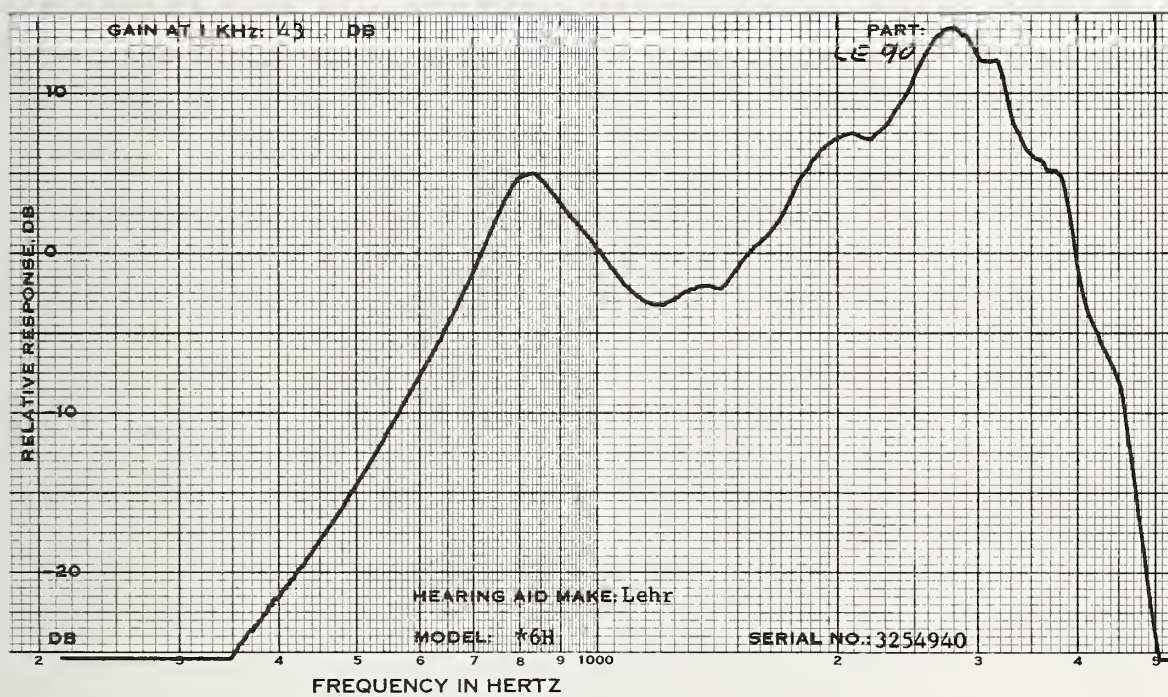
1KHZ GAIN DB	42.0	41.0	43.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	84.0	81.5	82.0
OUTPUT LEVEL DB	119.0	119.0	119.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	42.0(FULL)	41.0(FULL)	43.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	62.0 72.0	61.5 71.5	60.5 70.5
500 HZ %	4 2	4 1	4 2
700 HZ %	1 0	0 0	0 0
900 HZ %	1 1	1 1	0 1
MAX DIST %	4 12	4 17	4 13
FREQ OF MAX DIS	1950 1950	500 1810	500 1910
S/N RATIO DB			
1KHZ SIGNAL	40.5	41.5	40.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.8	1.9	1.8
65 DB INPUT	1.8	1.9	1.8
BATTERY VOLTAGE	1.32	1.35	1.35







LEHR  
 MODEL:\*6F TONE: CW TUBING: 1 1/4 BATTERY: 675 OE

CODE	LE-091	LE-092	LE-093
SERIAL #	3285336	3285362	3288190
DATE		JAN 19, 1974	

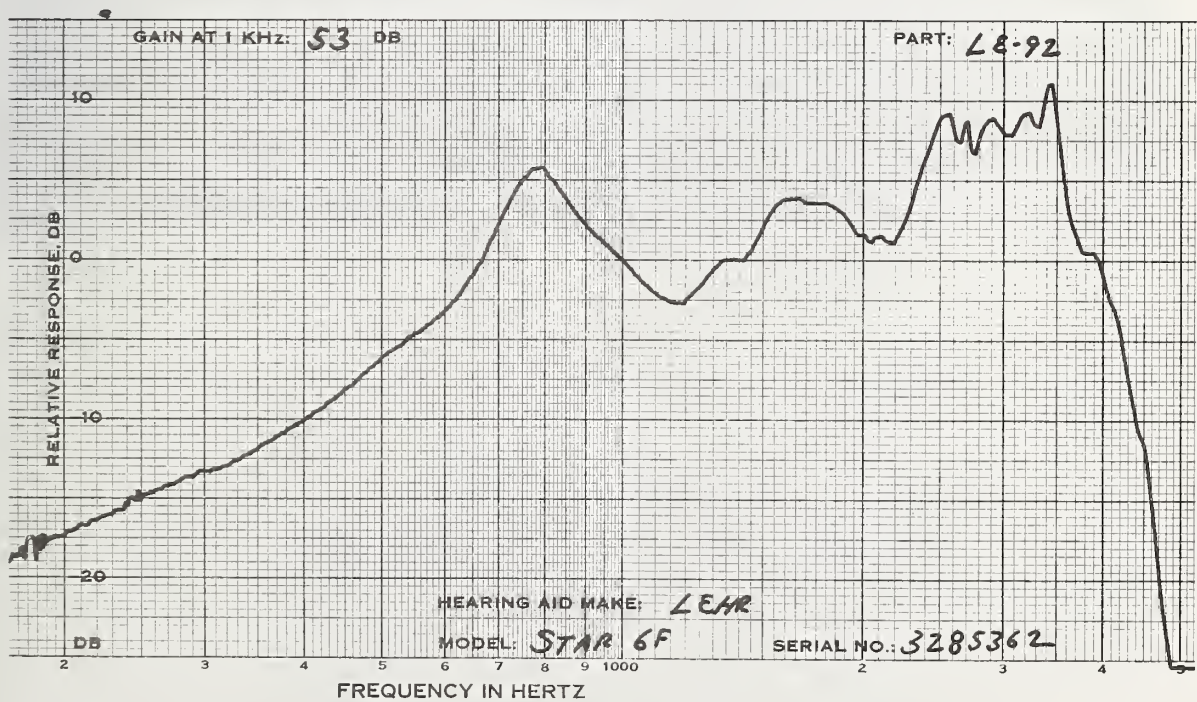
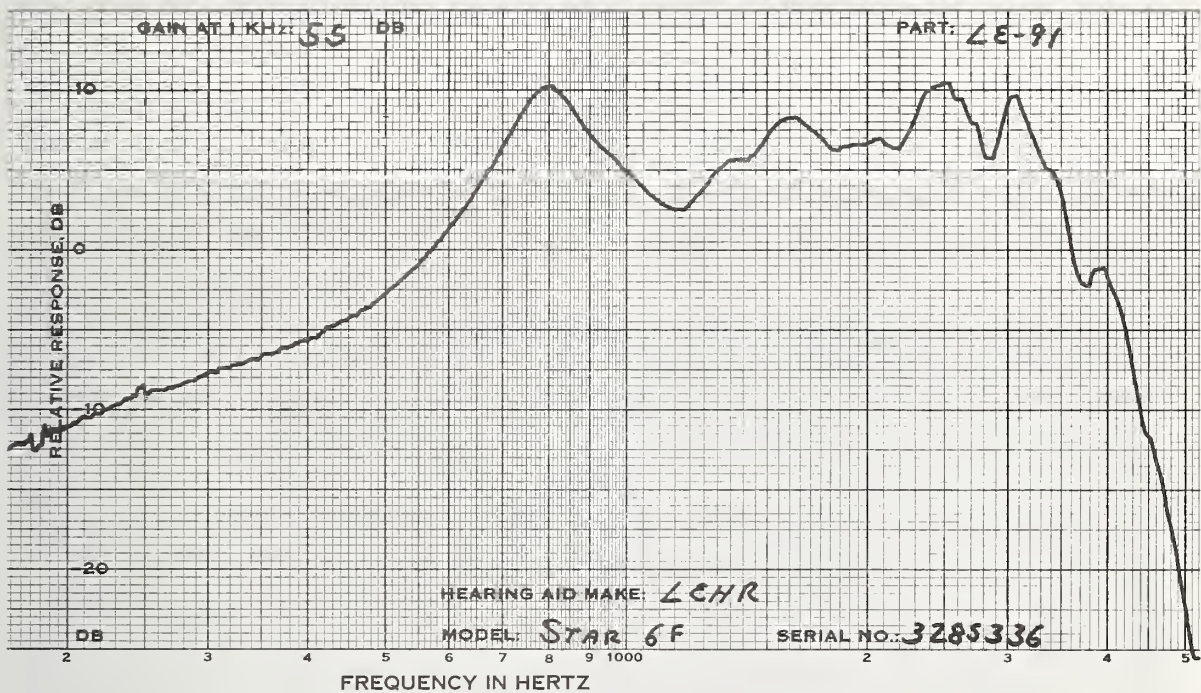
MEASUREMENTS WITH  
 FULL VOL CONTROL

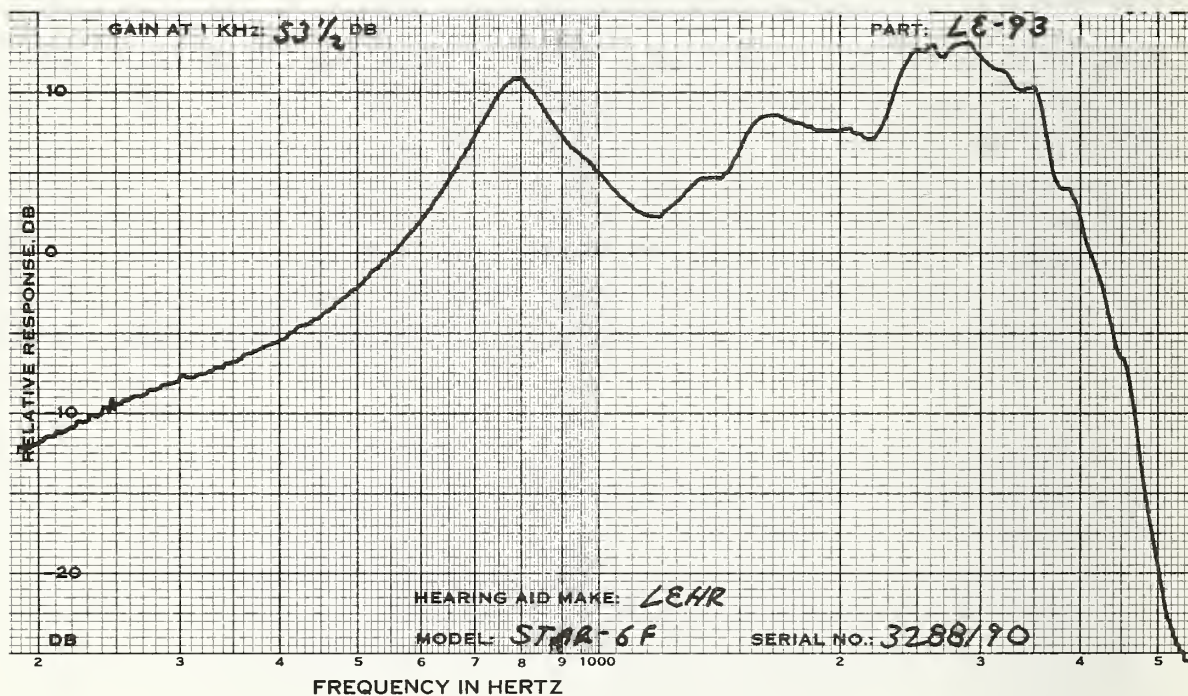
1KHZ GAIN DB	62.5	64.0	62.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	79.0	75.5	76.5
OUTPUT LEVEL DB	128.0	127.5	128.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	55.0	53.0	53.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	7 1	8 13	4 5
700 HZ %	1 2	2 3	2 2
900 HZ %	1 3	3 4	1 2
MAX DIST %	7 7	8 13	4 6
FREQ OF MAX DIS	500 1840	1970 500	1560 1740
S/N RATIO DB			
1KHZ SIGNAL	43.0	41.5	41.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.8	2.5	2.7
65 DB INPUT	3.5	3.1	3.1
BATTERY VOLTAGE	1.33	1.35	1.35







LEHR  
MODEL:OPTICA 6 TONE:L TUBING:1 1/4 BATTERY:675

EG

CODE	LE-094	LE-095	LE-096
SERIAL #	3300338	3281795	3283144
DATE		FEB 13, 1974	

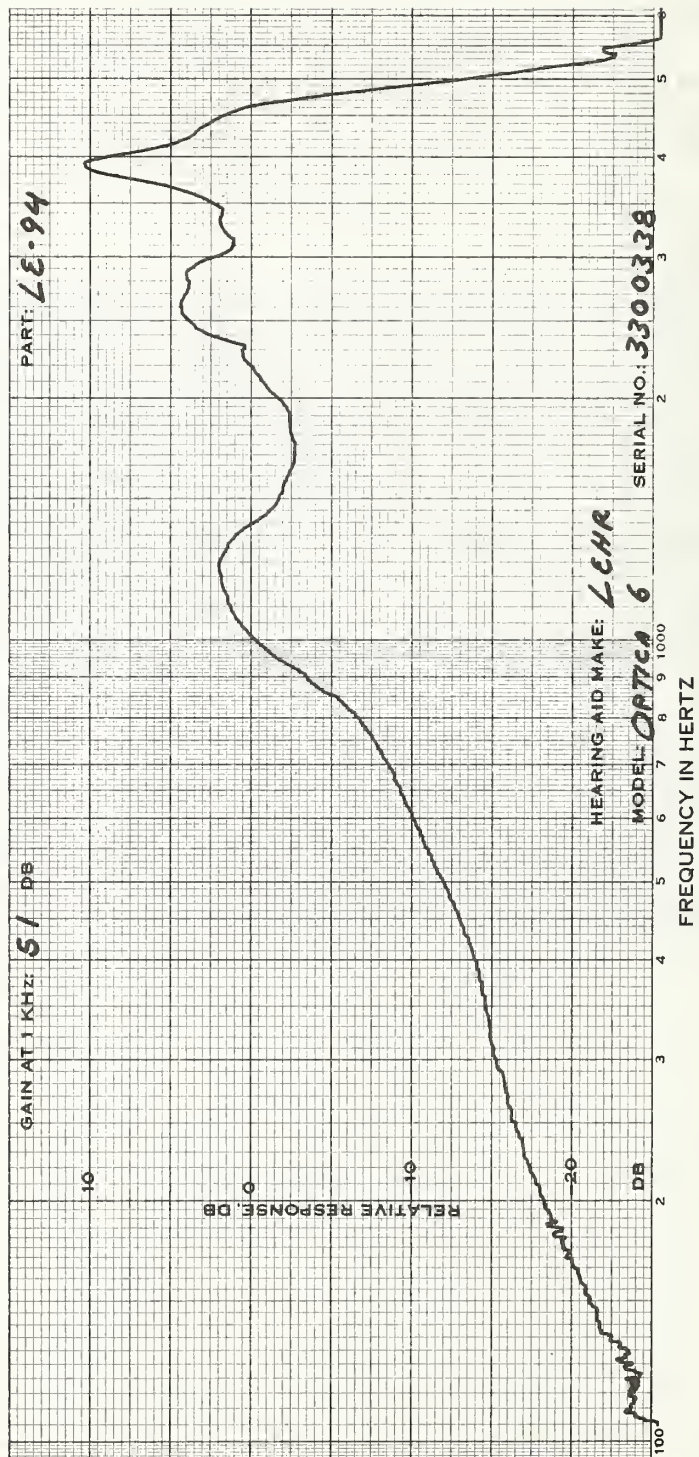
MEASUREMENTS WITH  
FULL VOL CONTROL

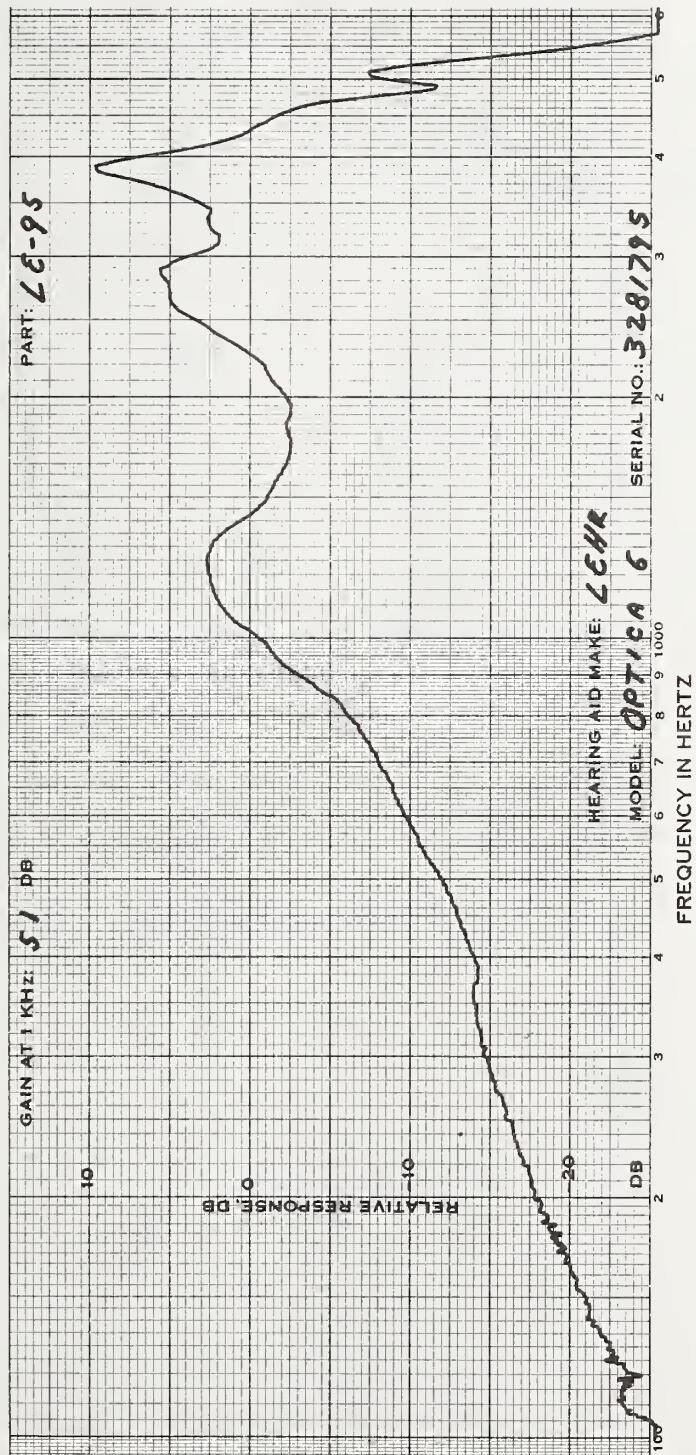
1KHZ GAIN DB	56.5	55.0	56.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	79.5	75.0	74.0
OUTPUT LEVEL DB	121.5	120.5	121.0

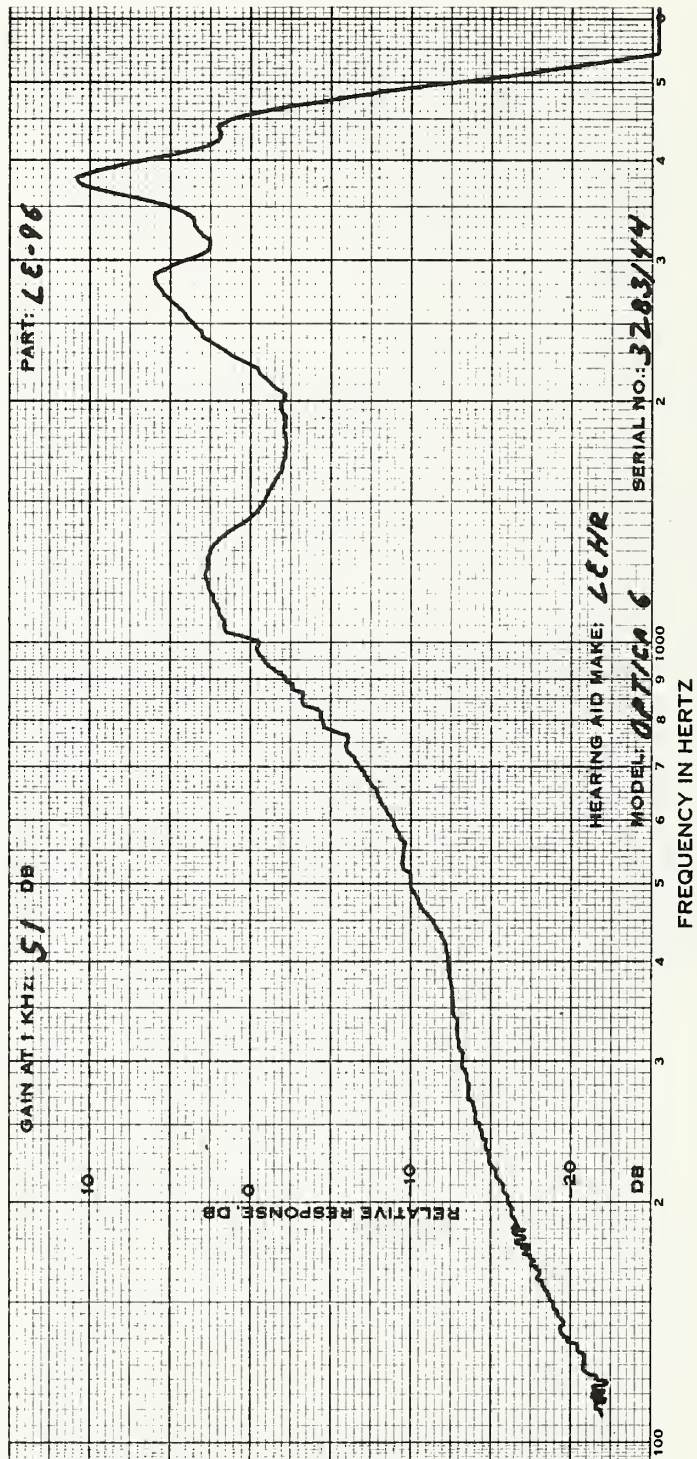
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	51.0	51.0	51.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 20	4 20	2 14
700 HZ %	2 11	2 12	2 8
900 HZ %	1 3	1 4	1 3
MAX DIST %	6 20	7 26	4 15
FREQ OF MAX DIS	600 500	570 580	590 590
S/N RATIO DB			
1KHZ SIGNAL	42.0	42.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.8	1.8	1.8
65 DB INPUT	1.8	1.9	1.8
BATTERY VOLTAGE	1.38	1.35	1.35











MAICO DIR OE  
 MODEL:CQ MK 100 PWR:MAX TUBING:2" BATTERY:S76

CODE	MA-172	MA-173	MA-174
SERIAL #	93026	93035	93066
DATE		APR 5, 1974	

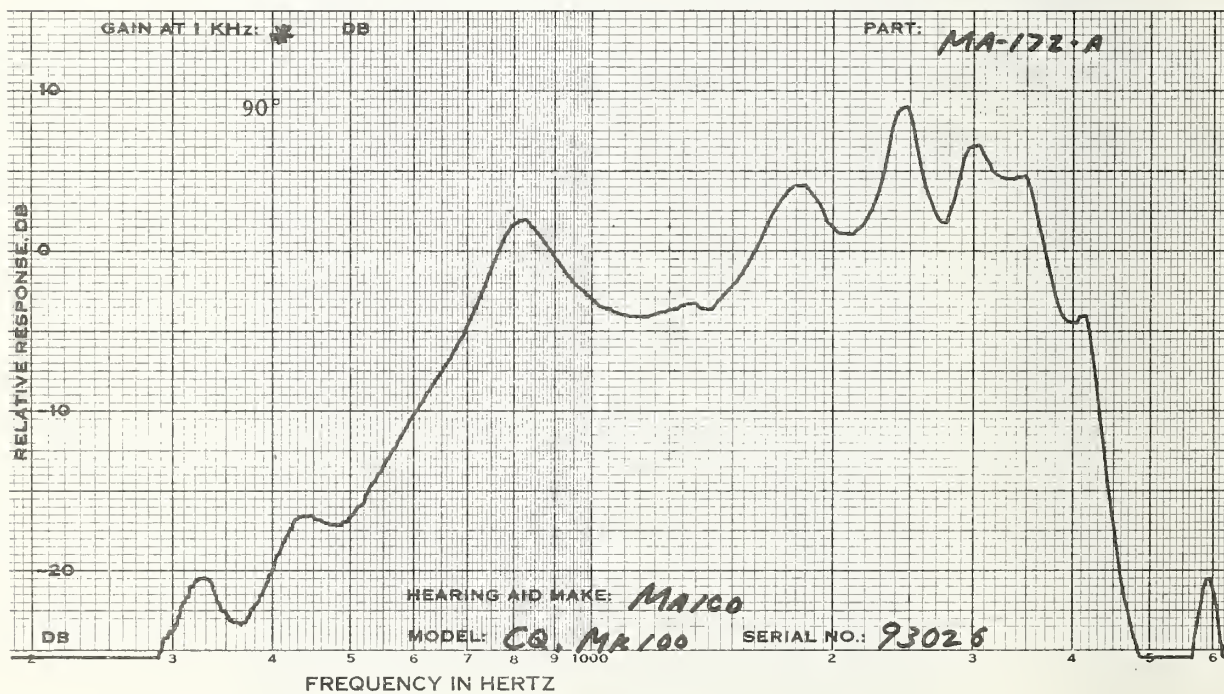
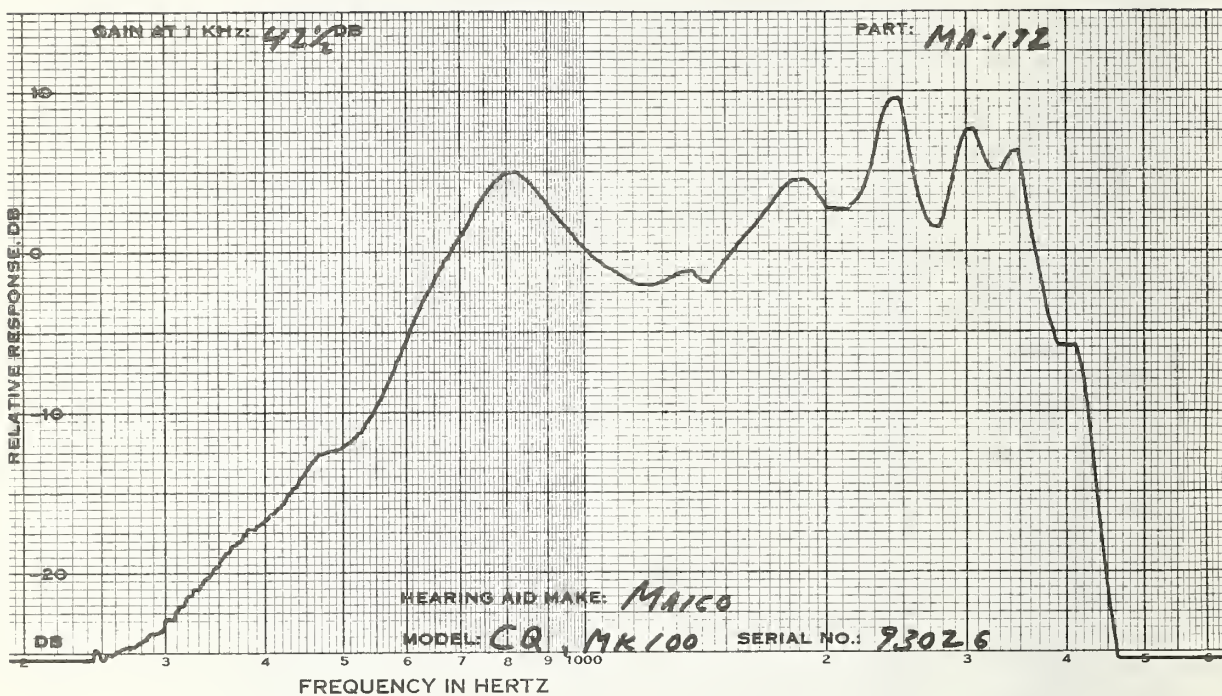
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	43.5	42.0	41.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	75.0	76.0	77.0
OUTPUT LEVEL DB	116.0	115.0	116.0

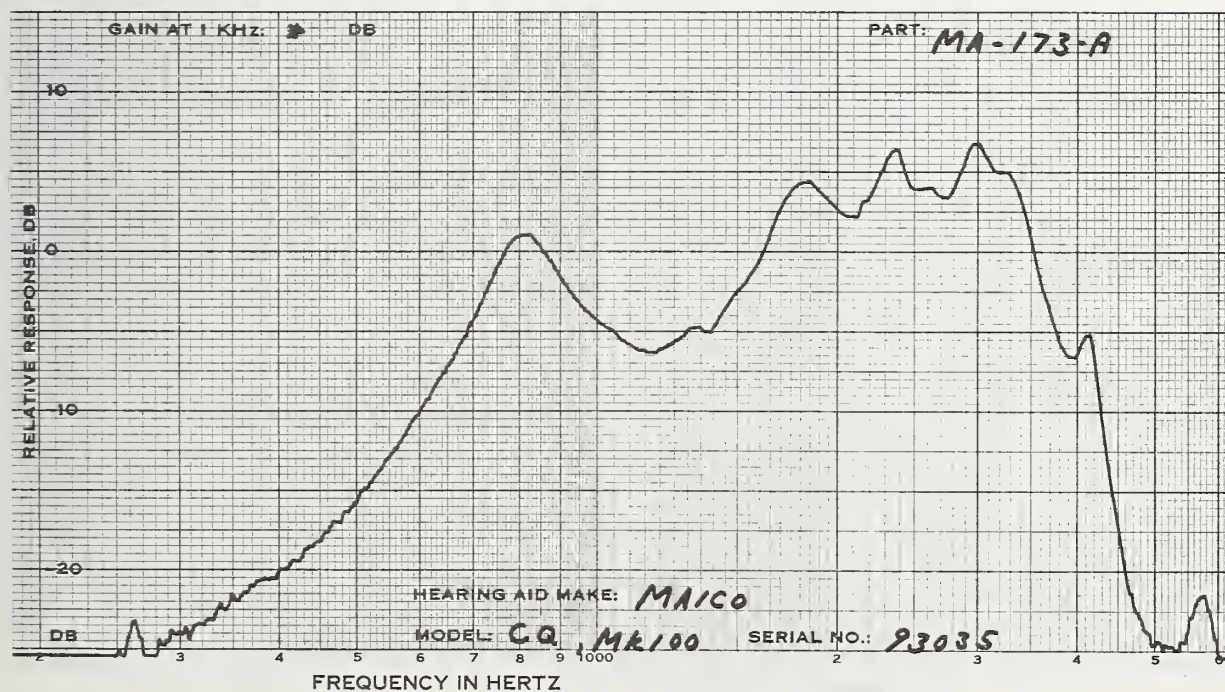
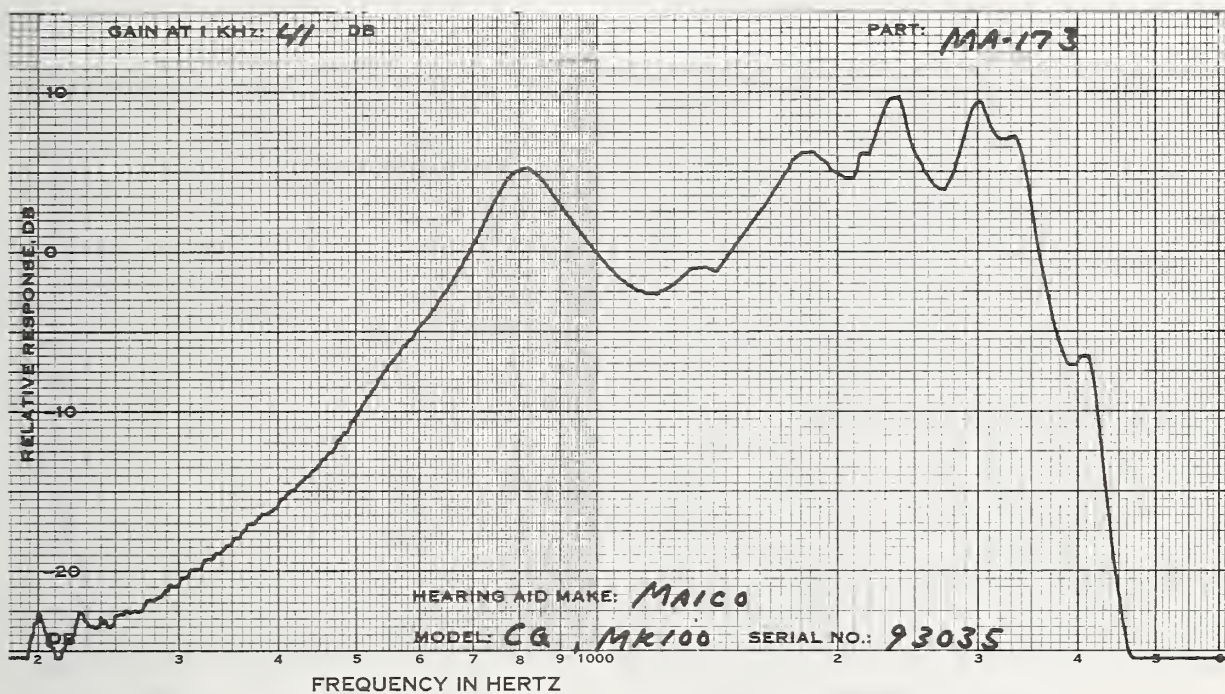
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	42.5	41.0	41.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 2	3 2	3 2
700 HZ %	1 1	1 1	1 1
900 HZ %	1 2	1 3	2 2
MAX DIST %	3 10	3 9	3 19
FREQ OF MAX DIS	500 1830	500 1550	1460 1610
S/N RATIO DB			
1KHZ SIGNAL	37.0	34.5	37.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.2	1.2	1.3
65 DB INPUT	1.2	1.2	1.3
BATTERY VOLTAGE	1.58	1.58	1.58

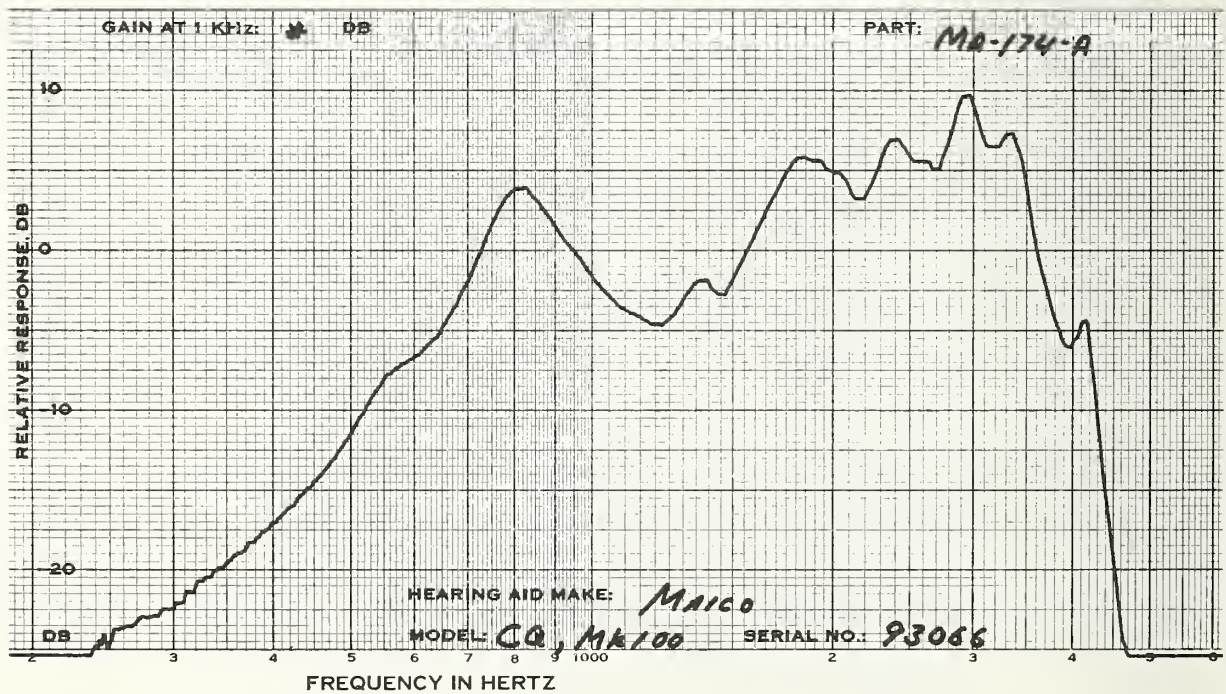
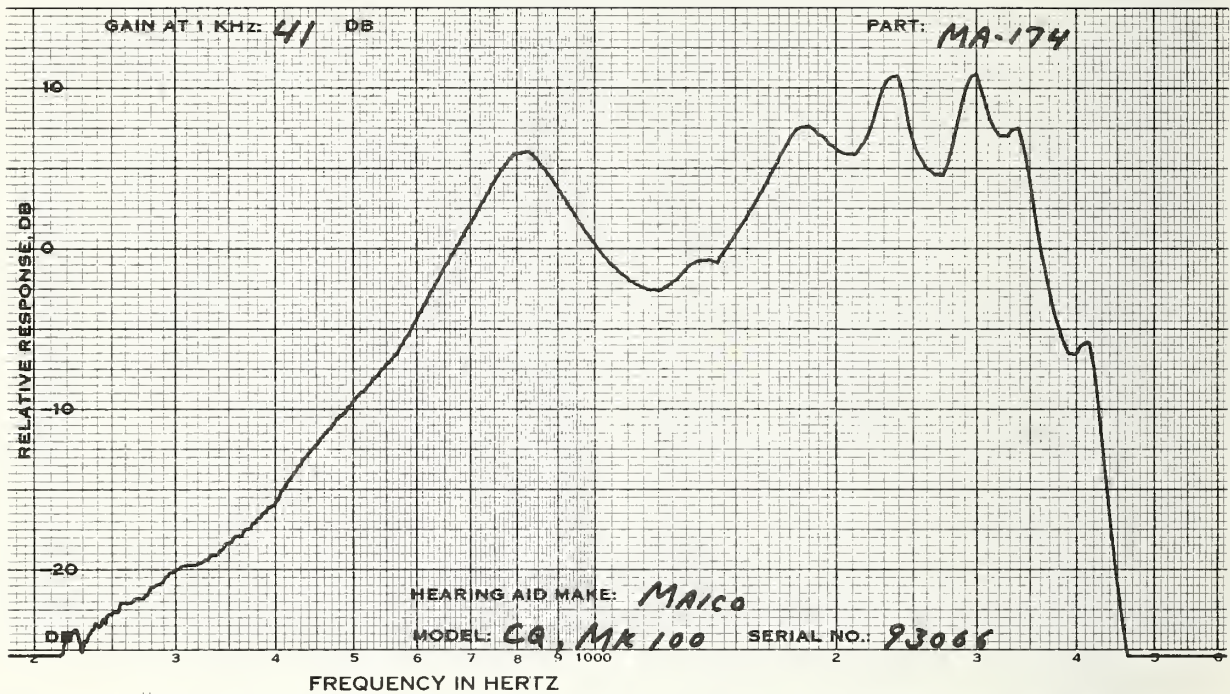
THE TUBING LENGTH SPECIFIED FOR USE IN TESTING  
 IS MUCH GREATER THAN WOULD EVER BE REQUIRED IN  
 ACTUAL USE.











MAICO H DIR OE  
 MODEL:DA MK120 PWR:MAX(CW) TUBING:1 1/2 BATTERY:S13

CODE	MA175A	MA176A	MA-177
SERIAL #	35812	35813	33995
DATE	MAY 3, 1974	MAY 3, 1974	APR 5, 1974

MEASUREMENTS WITH  
 FULL VOL CONTROL

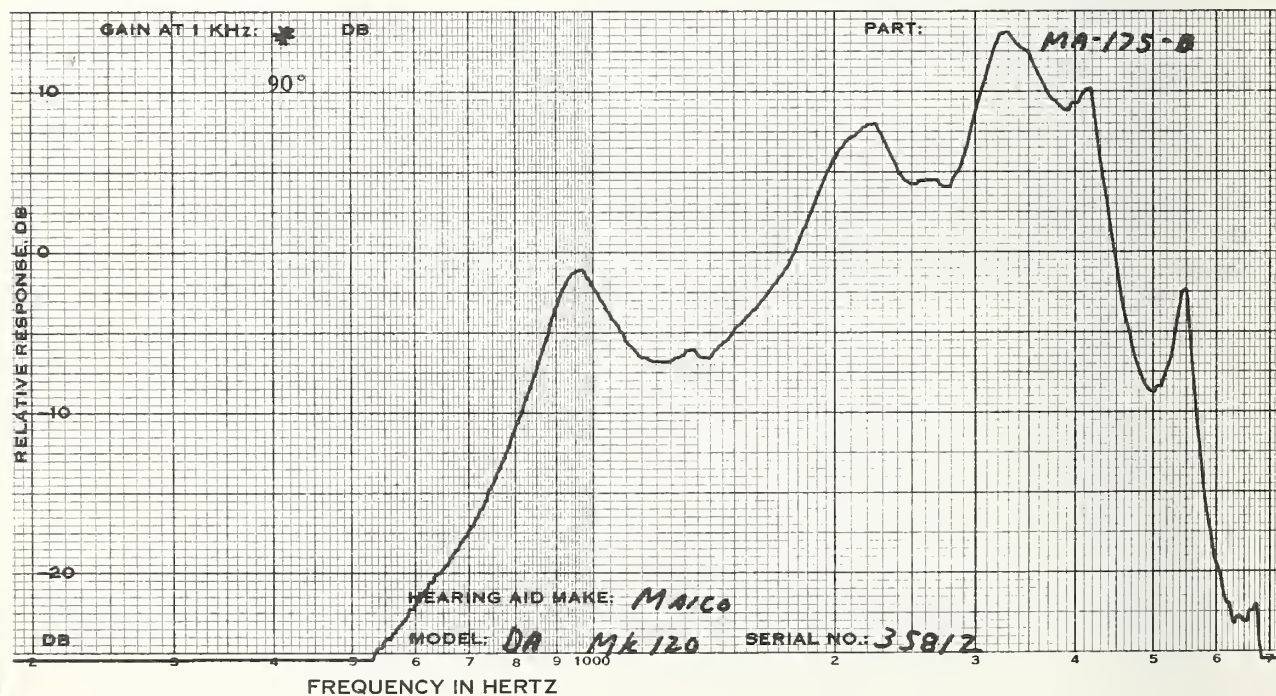
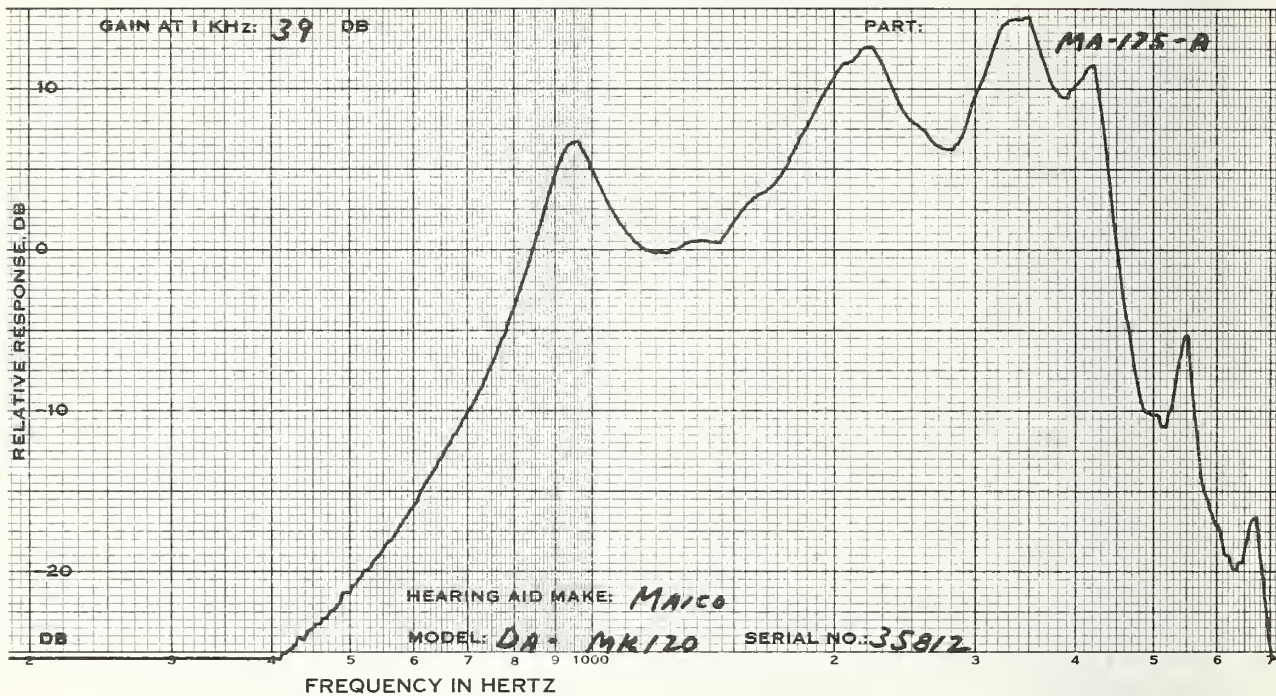
	MA175A	MA176A	MA-177
1KHZ GAIN DB	47.0	47.5	43.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.5	76.0	76.0
OUTPUT LEVEL DB	112.5	112.0	111.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

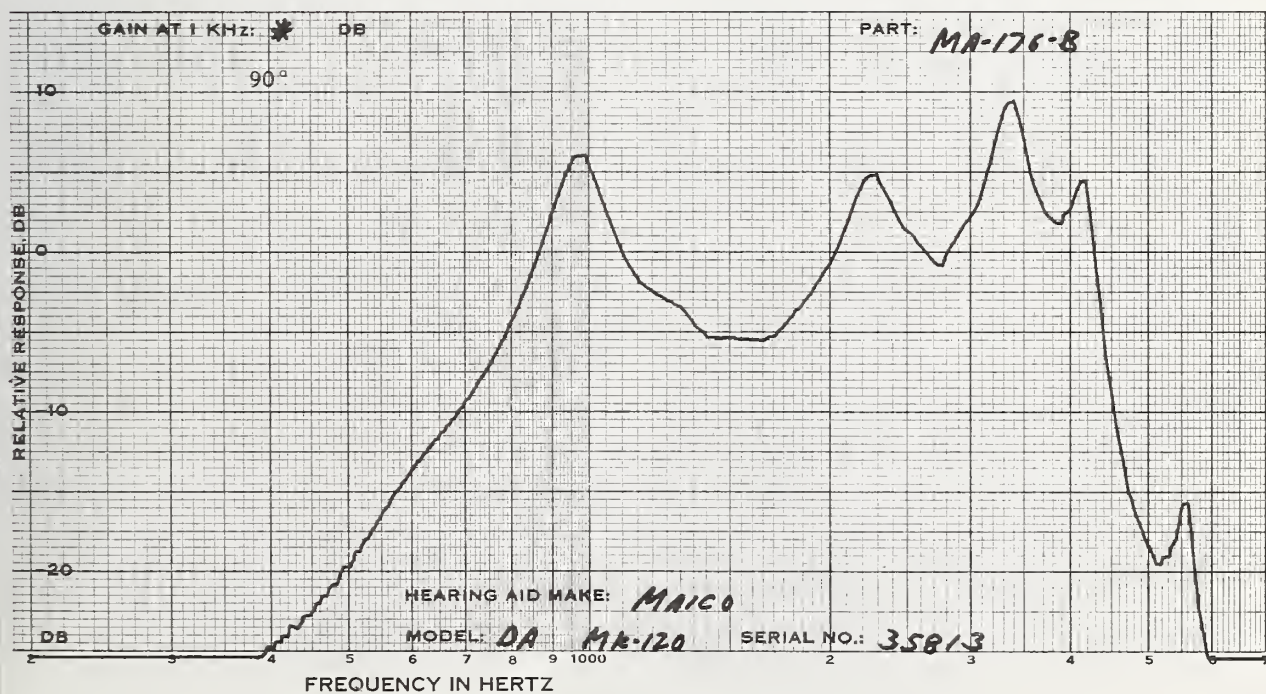
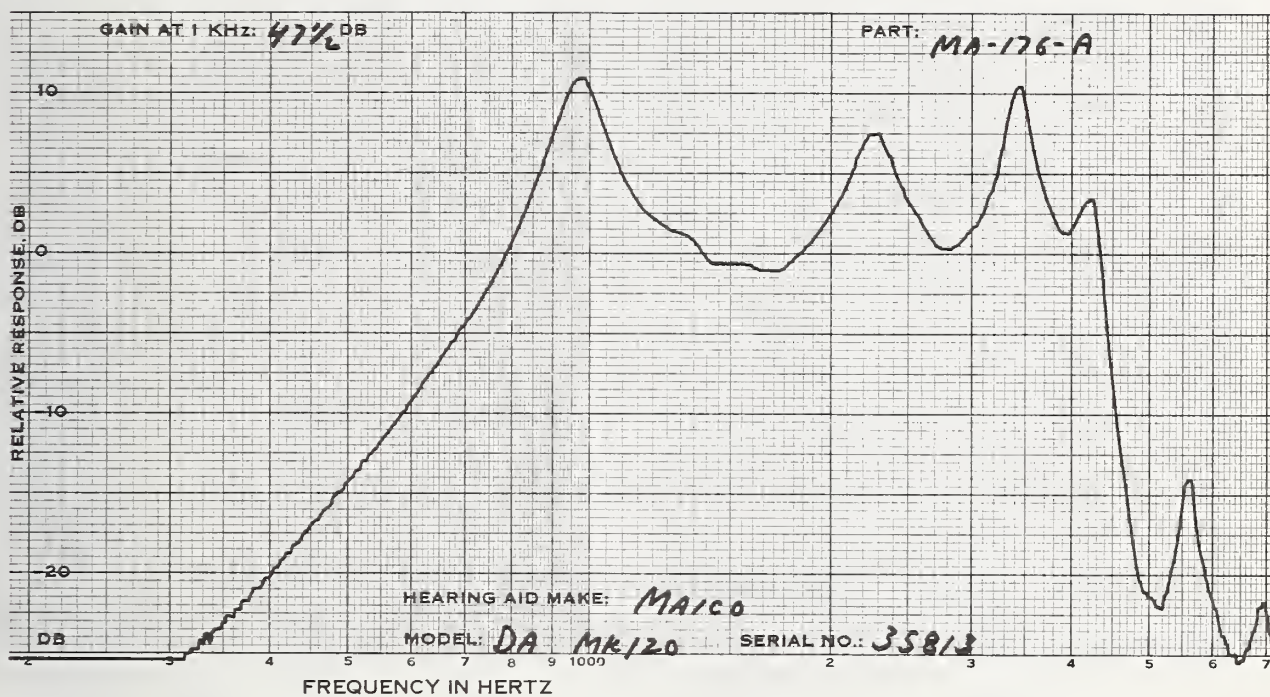
	MA175A	MA176A	MA-177
1KHZ GAIN DB	39.0	47.5(FULL)	41.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
1000 HZ %	2 9	2 14	1 13
1500 HZ %	9 54	8 50	7 47
2000 HZ %	4 38	3 24	3 24
MAX DIST %	17 86	8 50	19 87
FREQ OF MAX DIS	1720 1620	1500 1500	1620 1620
S/N RATIO DB			
1KHZ SIGNAL	49.0	44.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.3	.4	.4
65 DB INPUT	.3	.4	.4
BATTERY VOLTAGE	1.57	1.55	1.58
S/N 2KHZ	54.5	38.0	43.0

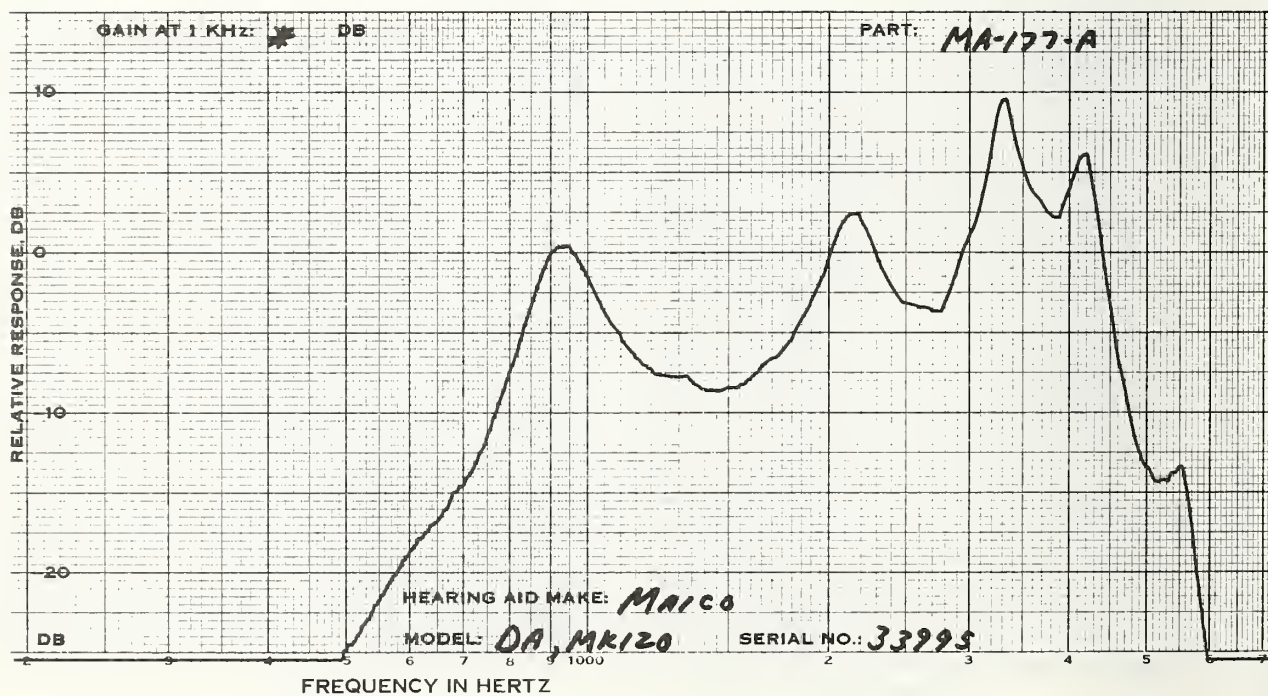
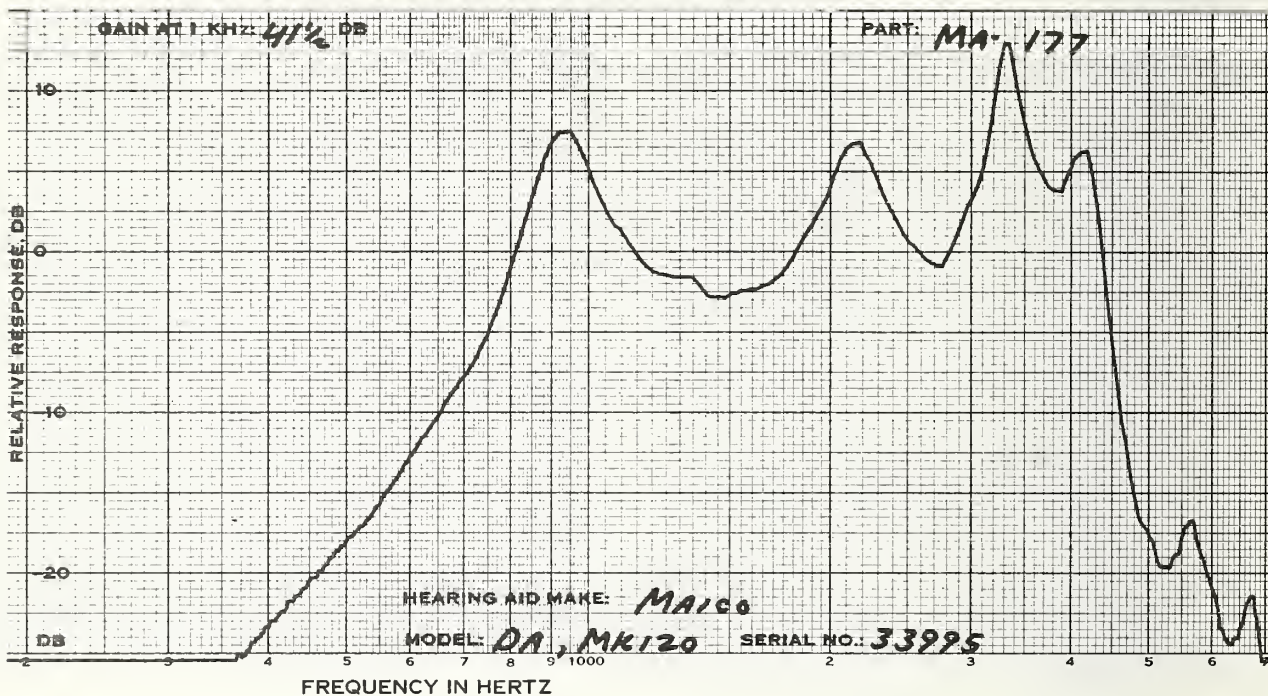
MA-175, SERIAL # 33950, AND MA-176, SERIAL # 33979, WERE  
 CONSIDERED DEFECTIVE BECAUSE OF SEVERE FEEDBACK WHICH  
 REQUIRED A SUBSTANTIAL REDUCTION OF THE GAIN CONTROL  
 TO STOP.













MAICO H DIR OE  
 MODEL:DB MK 130 PWR:MAX TUBING:1 1/2 BATTERY:S76

CODE	MA-178	MA-179	MA-180
SERIAL #	13242	13261	13274
DATE		APR 5, 1974	

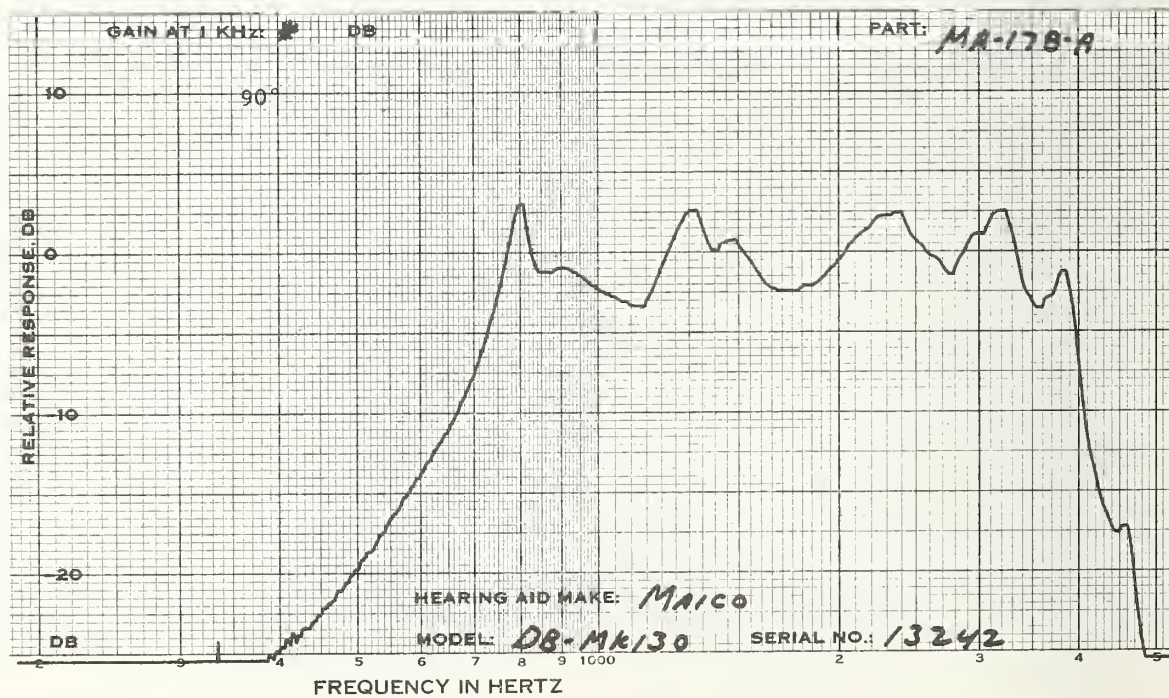
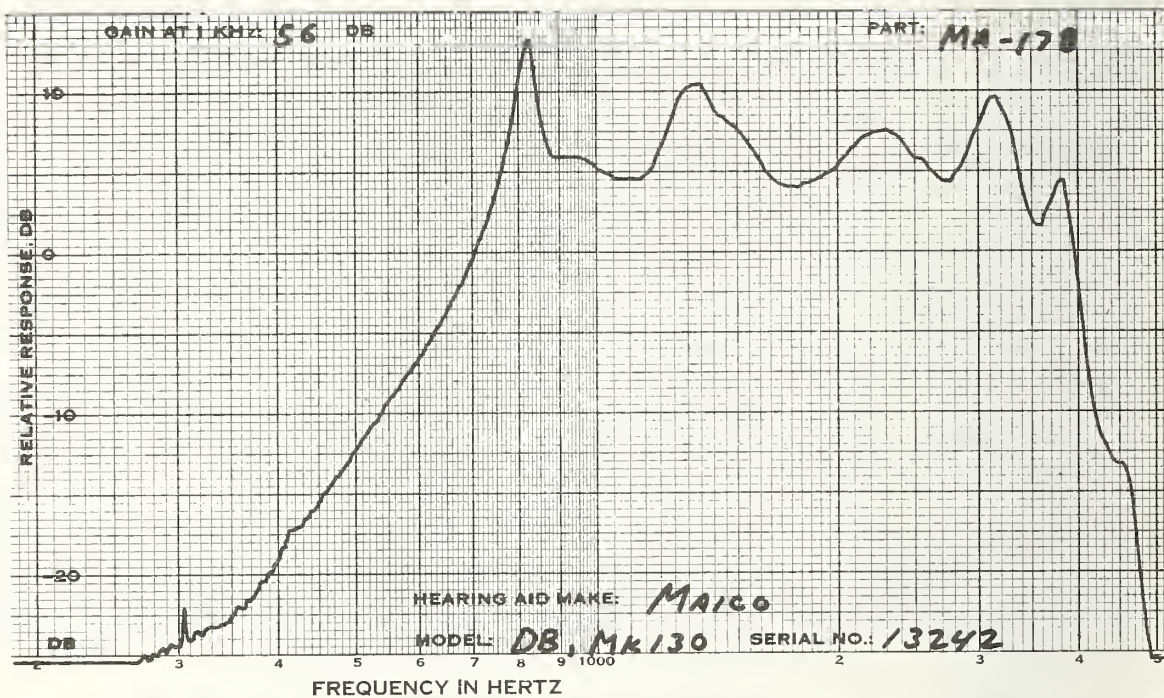
MEASUREMENTS WITH  
 FULL VOL CONTROL

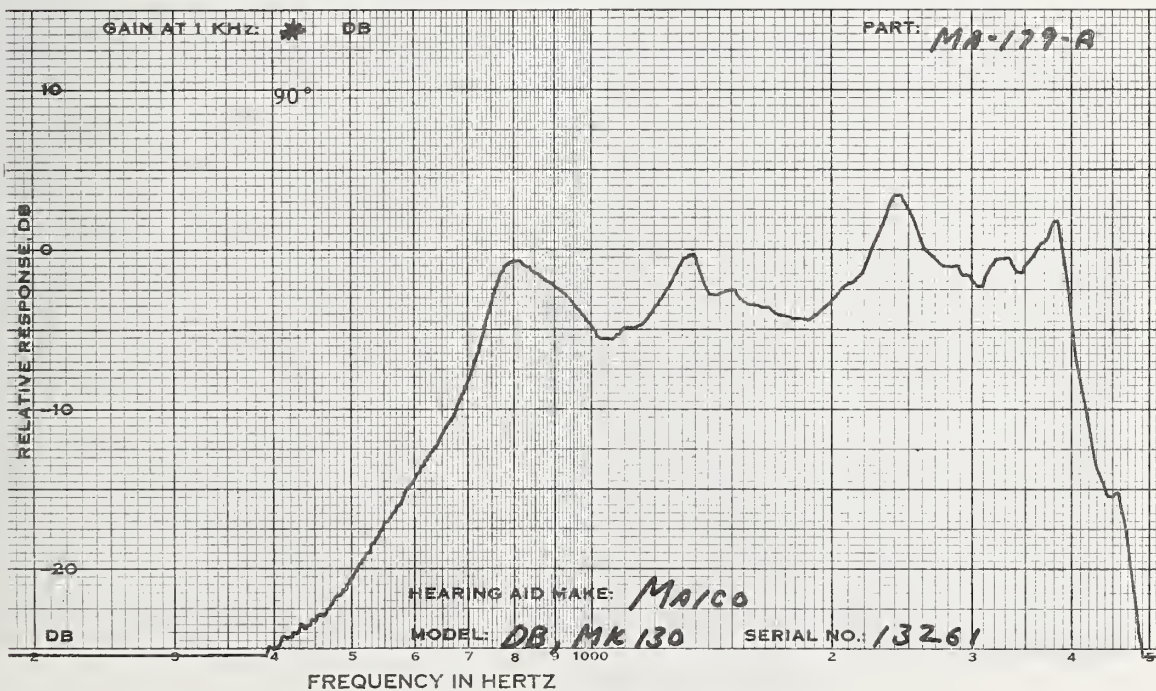
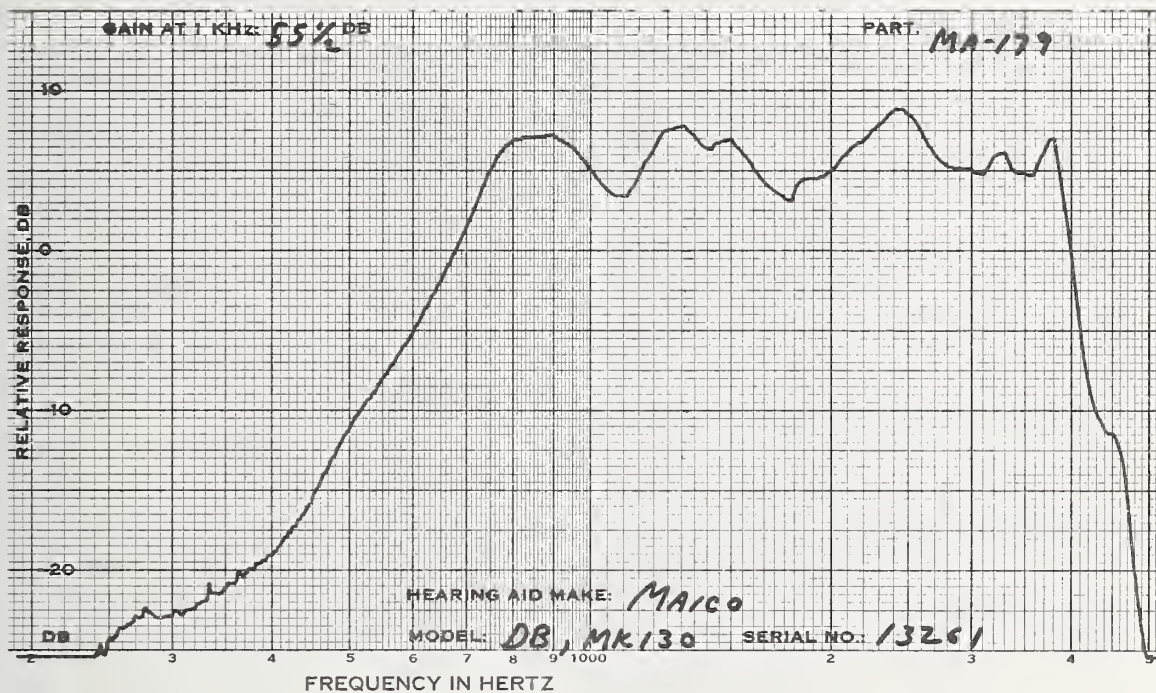
1KHZ GAIN DB	59.0	59.0	62.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.0	73.5	73.0
OUTPUT LEVEL DB	126.5	127.0	125.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

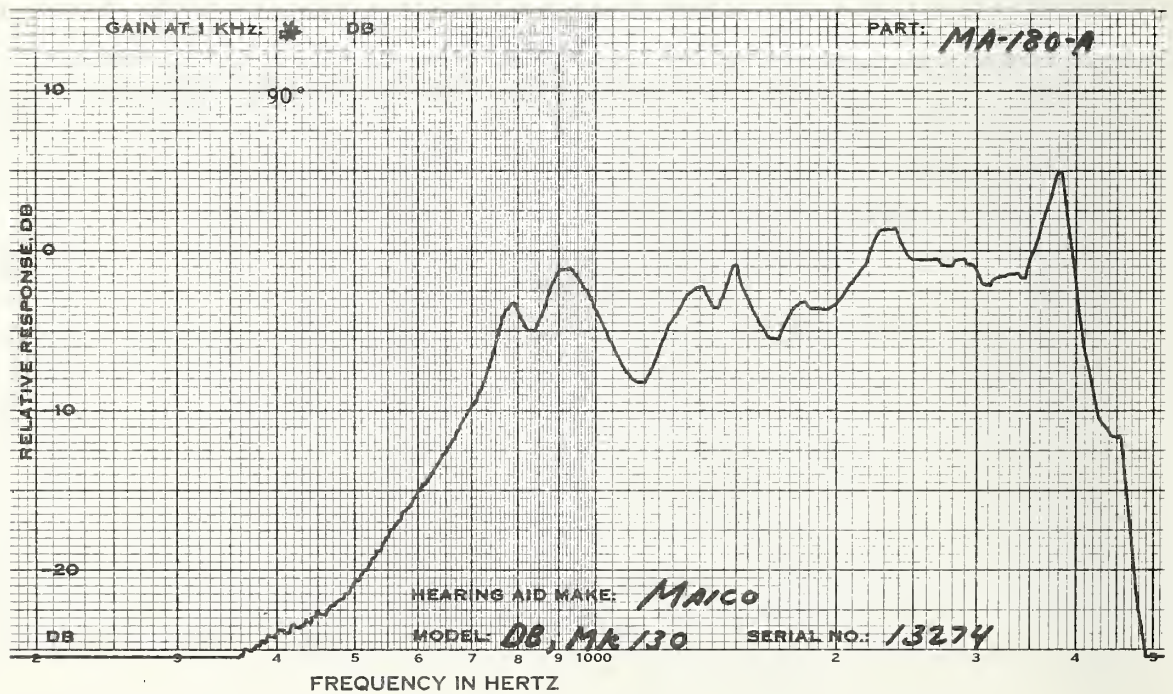
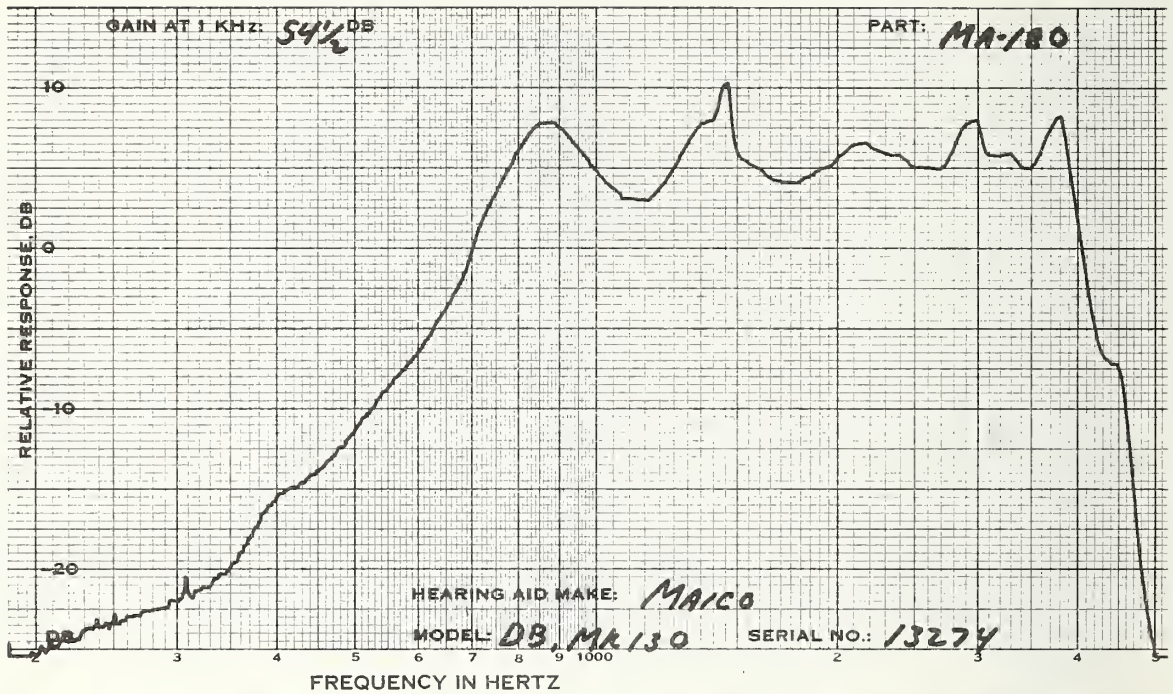
1KHZ GAIN DB	56.0	55.5	54.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
1000 HZ %	2 4	1 3	1 3
1500 HZ %	3 10	3 10	2 8
2000 HZ %	1 1	1 2	0 2
MAX DIST %	5 34	5 31	2 23
FREQ OF MAX DIS	1560 1240	1850 1230	1240 1240
S/N RATIO DB			
1KHZ SIGNAL	41.5	41.5	41.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	1.0	.9
65 DB INPUT	2.4	2.5	1.7
BATTERY VOLTAGE	1.58	1.58	1.58
S/N 2KHZ	42.0	41.5	42.5













NORELCO  
 MODEL:HP8123 SP&WFR TONE:SEE BELOW RECEIVER:PH77 BATTERY:1015E

CODE	NO-124	NO-125	NO-126
SERIAL #	41497	42264	42347
DATE		JAN 31, 1974	

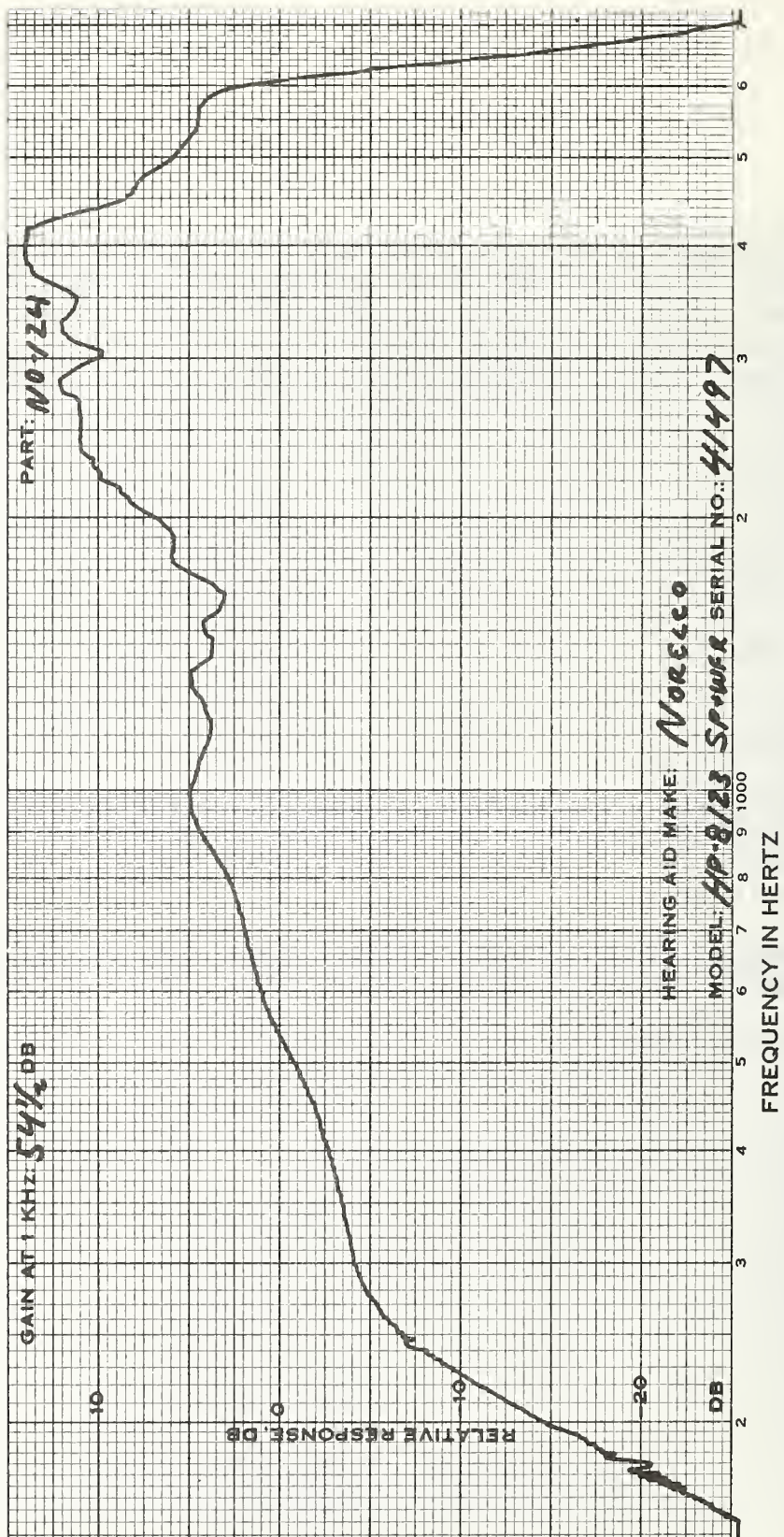
MEASUREMENTS WITH  
 FULL VOL CONTROL

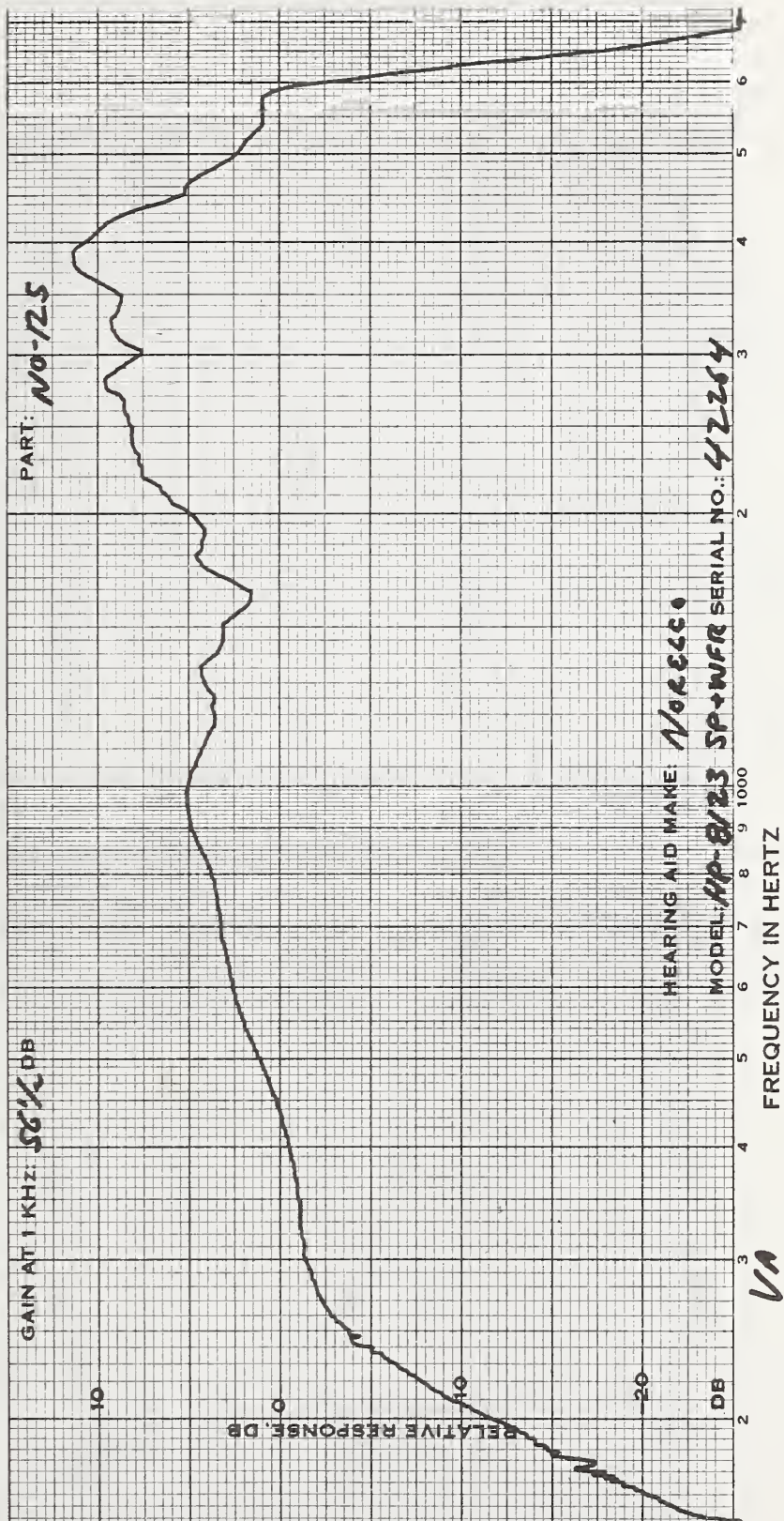
1KHZ GAIN DB	62.0	62.0	62.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.5	78.0	66.0
OUTPUT LEVEL DB	128.0	128.0	125.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

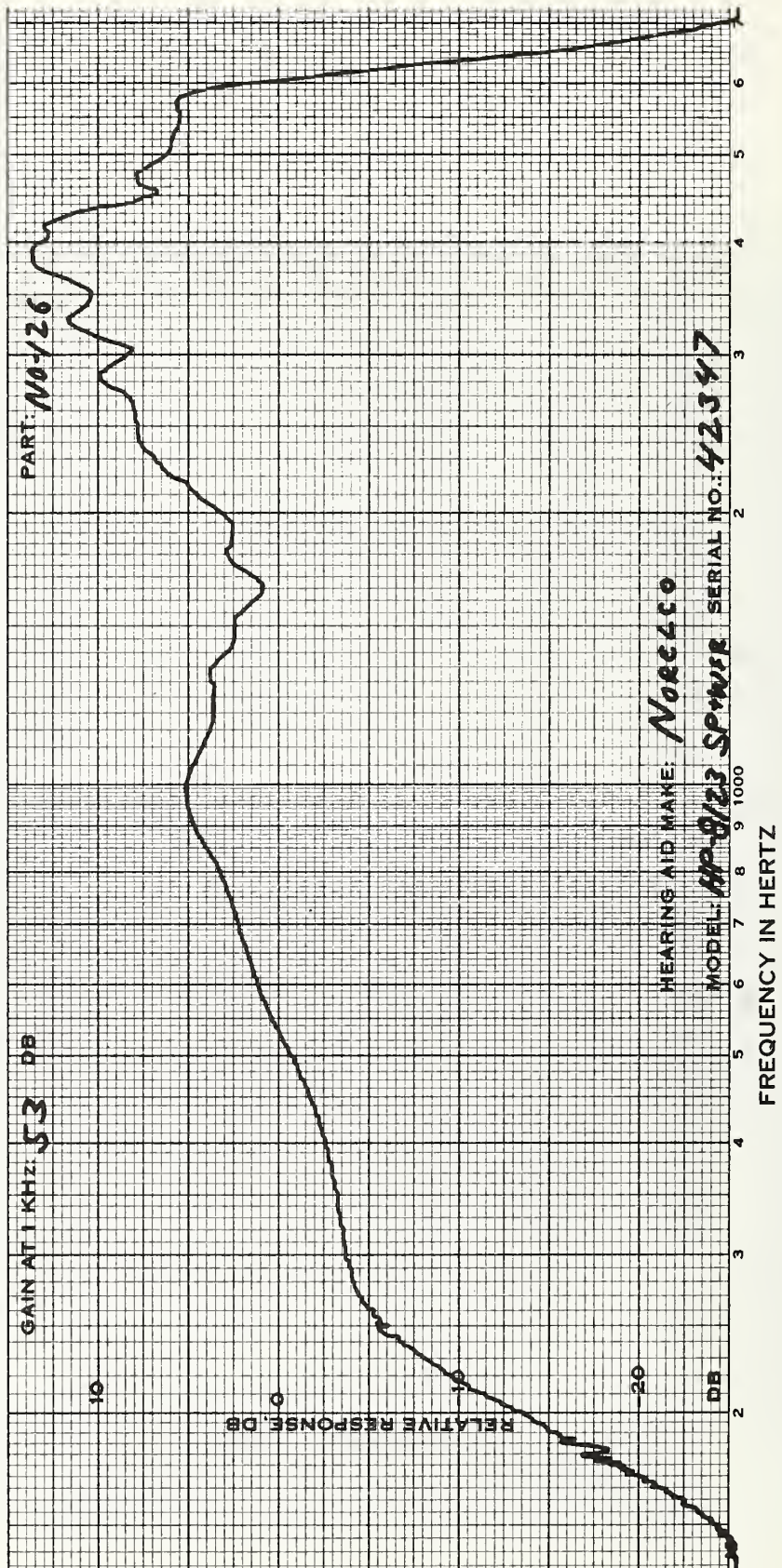
1KHZ GAIN DB	54.5	56.5	53.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	1 5	5 6	3 4
700 HZ %	1 1	2 4	1 2
900 HZ %	3 5	3 6	2 4
MAX DIST %	7 10	5 8	3 6
FREQ OF MAX DIS	1270 1270	2040 1250	2070 1060
S/N RATIO DB			
1KHZ SIGNAL	43.5	42.0	41.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	5.9	6.1	6.2
65 DB INPUT	17.3	17.0	13.0
BATTERY VOLTAGE	1.53	1.53	1.55

PC:5 GAIN:0 TONE:N









NORELCO  
 MODEL:HP8126 ETECTRET PC:5 VTC:0 TONE:N RECEUVER:PHP BAT:1015

OB

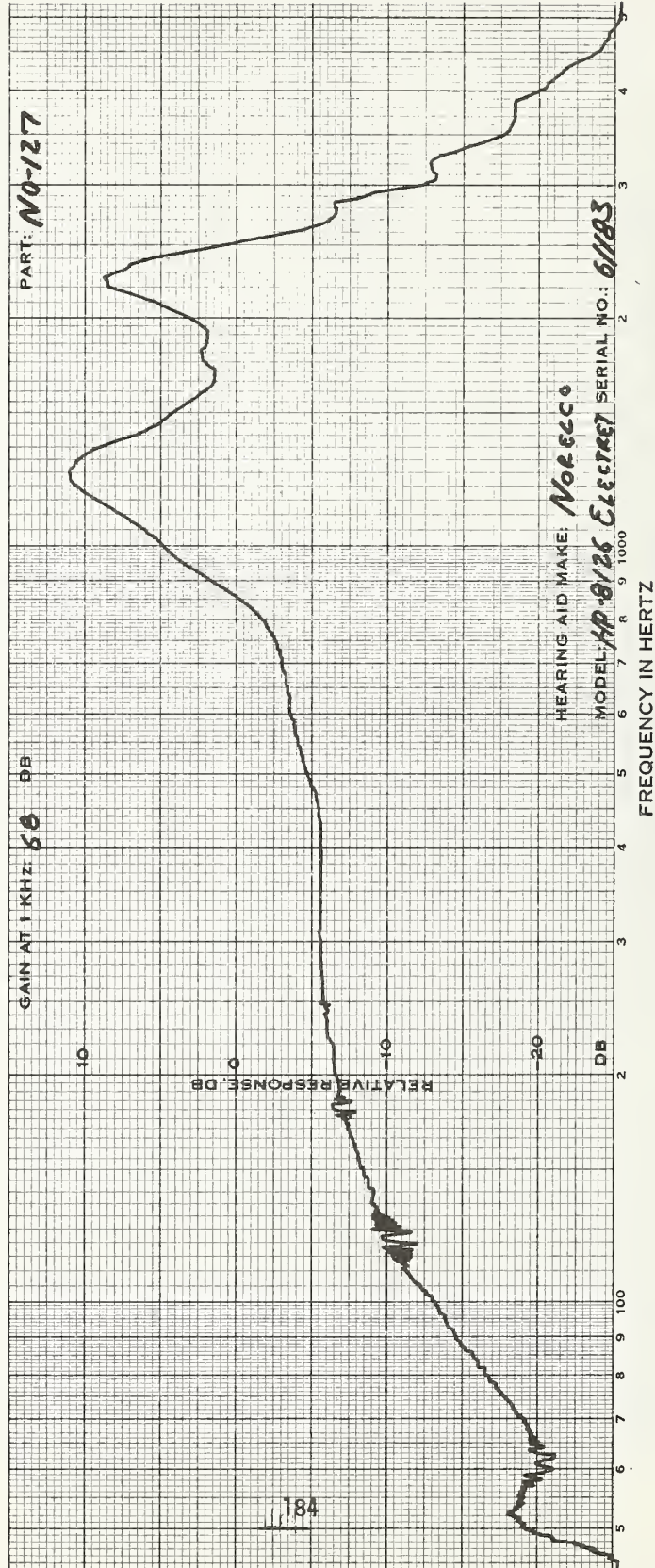
CODE	NO-127	NO-128	NO-129
SERIAL #	61183	61972	62338
DATE		JAN 31, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

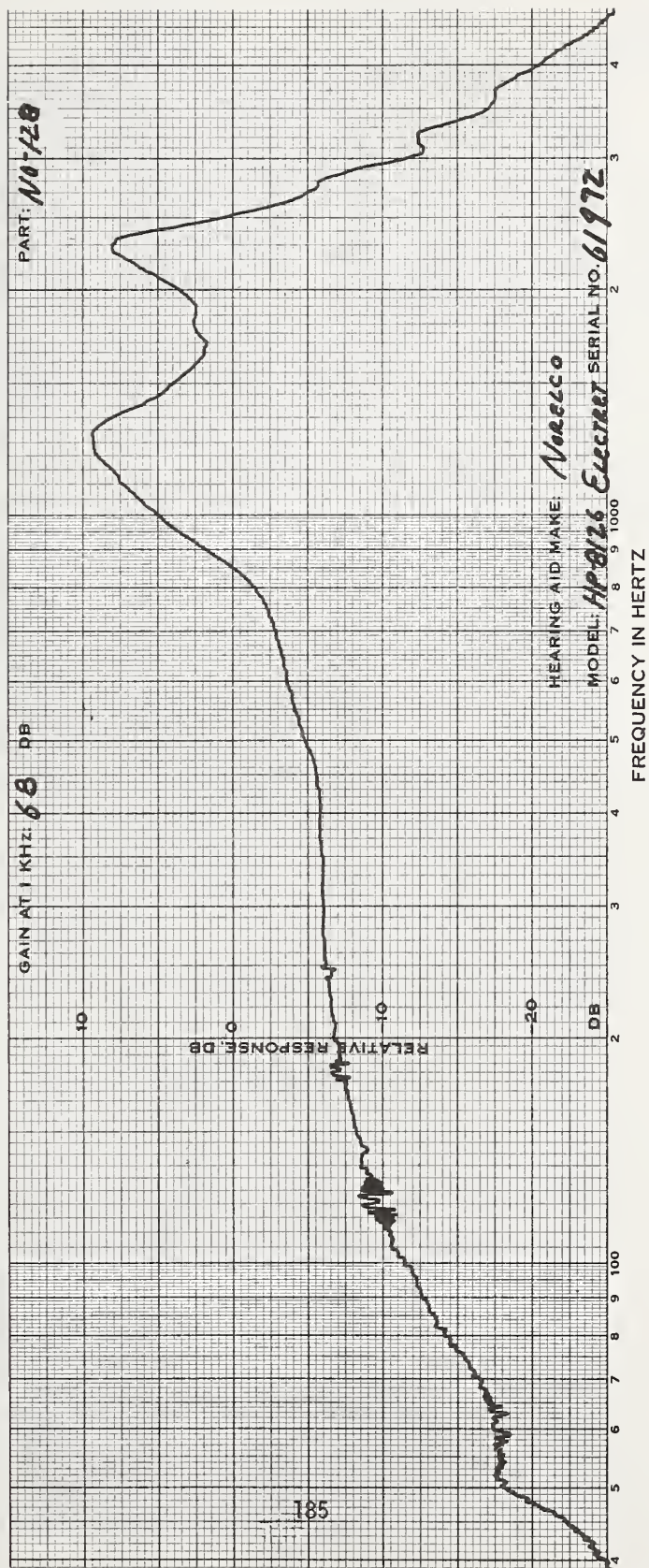
1KHZ GAIN DB	82.0	82.5	83.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	64.0	63.0	58.0
OUTPUT LEVEL DB	138.0	139.5	139.0

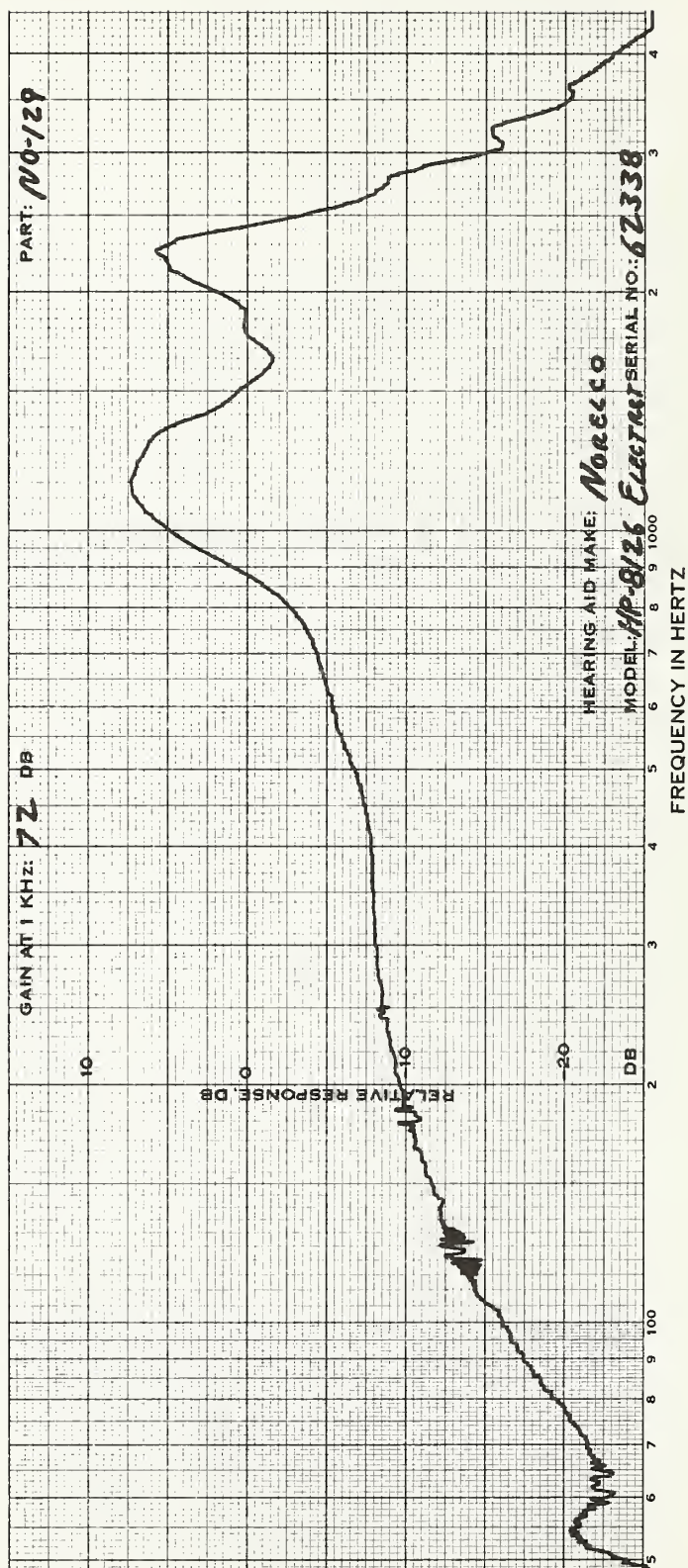
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	68.0	70.5	72.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	11 6	6 7	10 8
700 HZ %	8 7	5 6	6 6
900 HZ %	3 3	3 4	2 4
MAX DIST %	16 18	8 12	10 10
FREQ OF MAX DIS	620 1160	620 600	540 590
S/N RATIO DB			
1KHZ SIGNAL	49.0	40.0	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	5.2	5.2	5.3
65 DB INPUT	14.8	15.3	15.7
BATTERY VOLTAGE	1.53	1.54	1.53









NORELCO  
 MODEL:HP8273 ELECTRET PC&TC PC:5 TONE:N TUBING:1'' BATTERY:675

CODE	NO-130	NO-131	NO-132
SERIAL #	71959	71964	72000
DATE		JAN 29, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

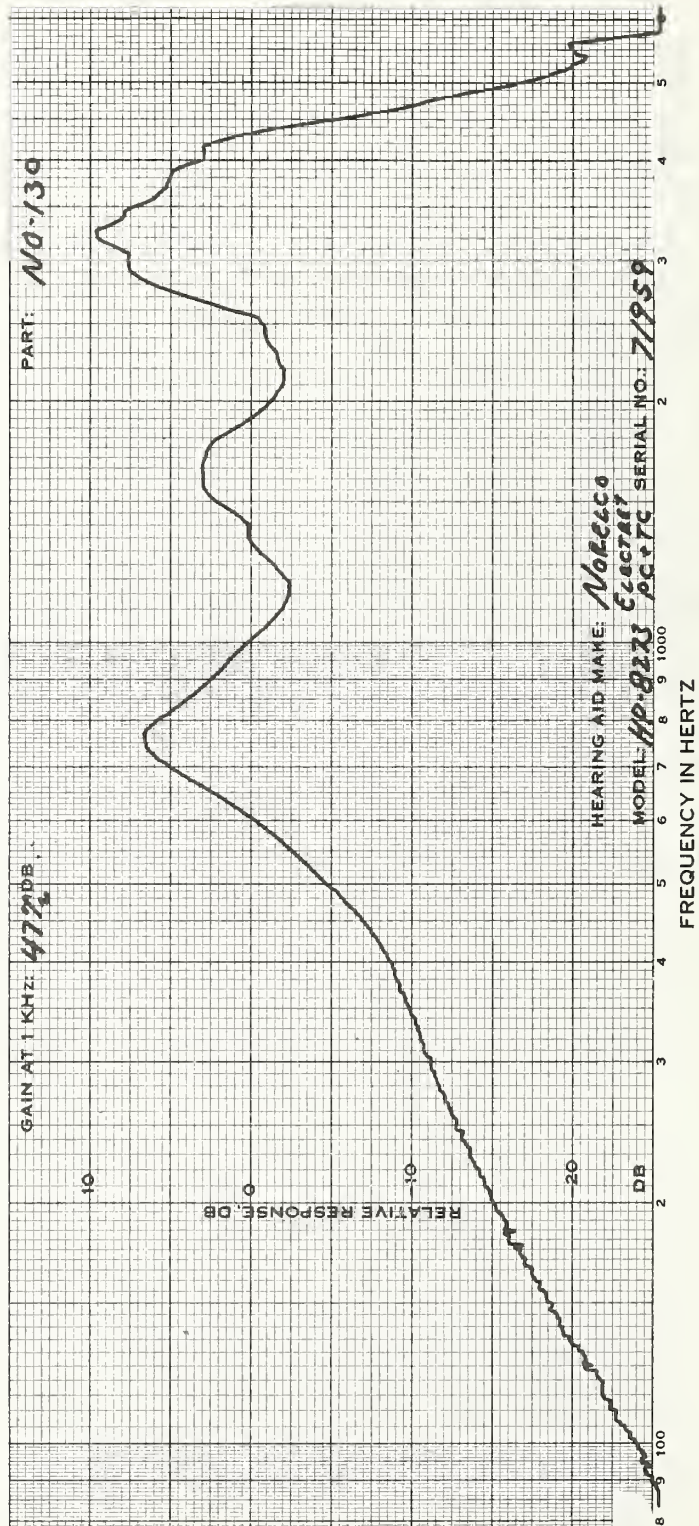
1KHZ GAIN DB	60.0	61.0	59.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.0	72.0	75.5
OUTPUT LEVEL DB	121.5	121.5	121.0

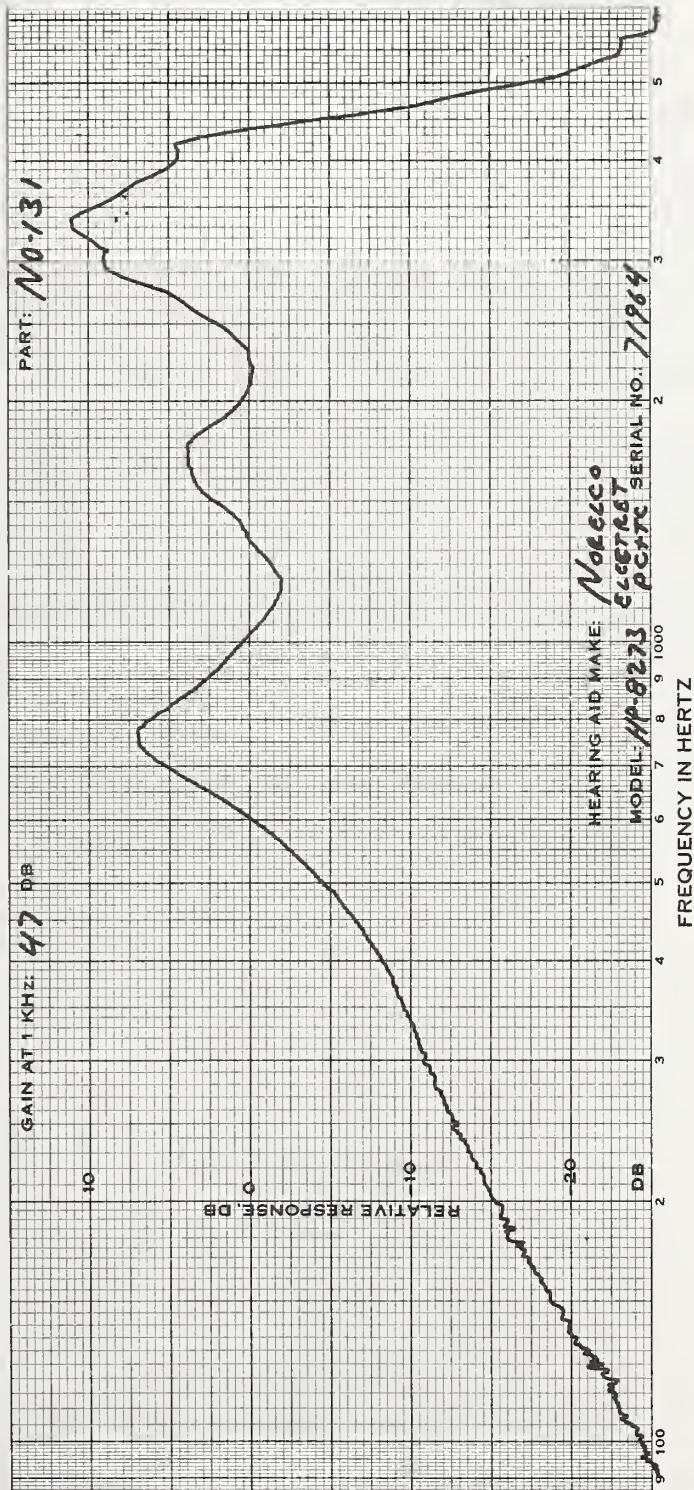
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	47.5	47.0	47.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 5	2 4	2 3
700 HZ %	0 1	0 1	0 1
900 HZ %	0 2	1 2	0 2
MAX DIST %	2 14	2 13	2 11
FREQ OF MAX DIS	500 1430	500 1460	500 1480
S/N RATIO DB			
1KHZ SIGNAL	38.5	38.5	38.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.0	2.0	2.0
65 DB INPUT	2.0	2.0	1.9
BATTERY VOLTAGE	1.35	1.35	1.35

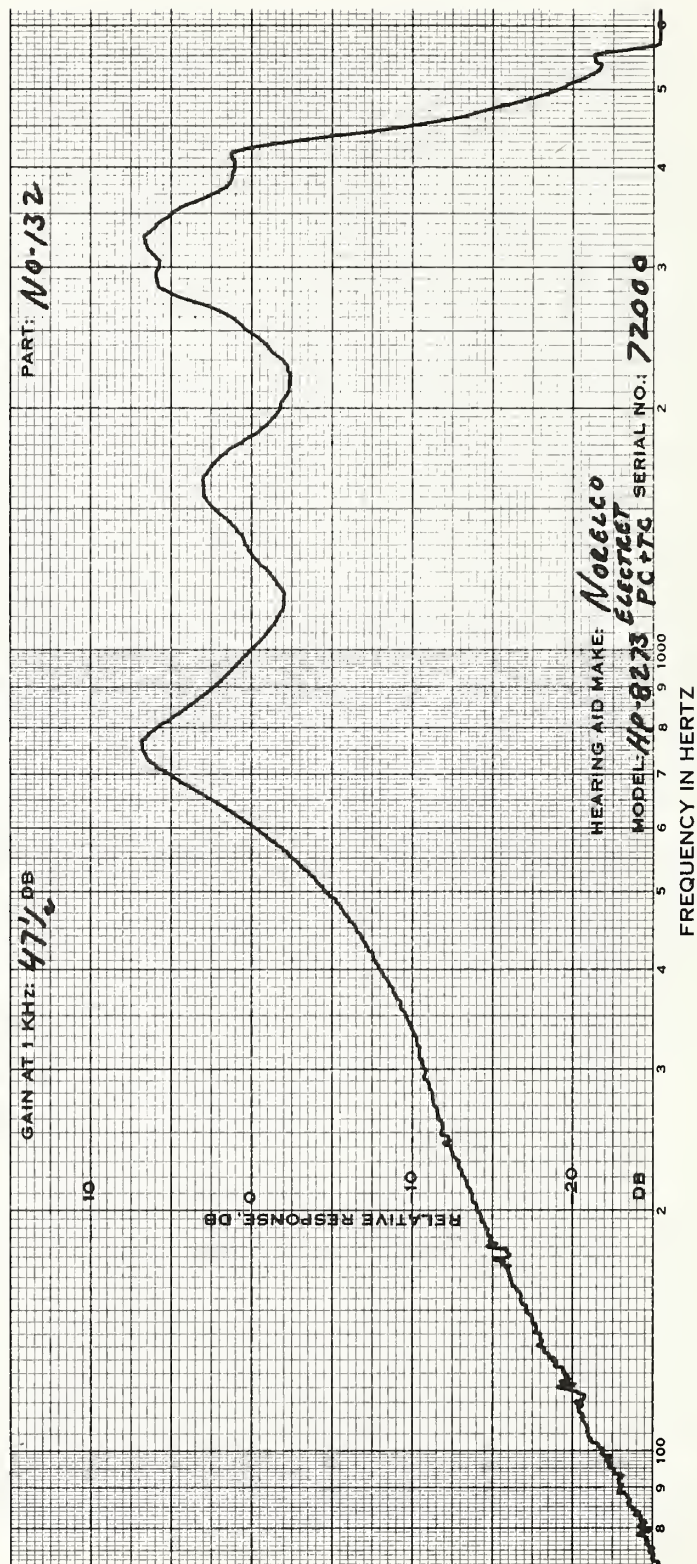
N TONE TUBE













NORELCO

OE

MODEL:HP8278 ELECTRET AMG&amp;TC AMG:MAX TONE:N TUBING:1 BAT:675

CODE	NO-133	NO-134	NO-135
SERIAL #	30286	30305	30713
DATE		JAN 30, 1974	

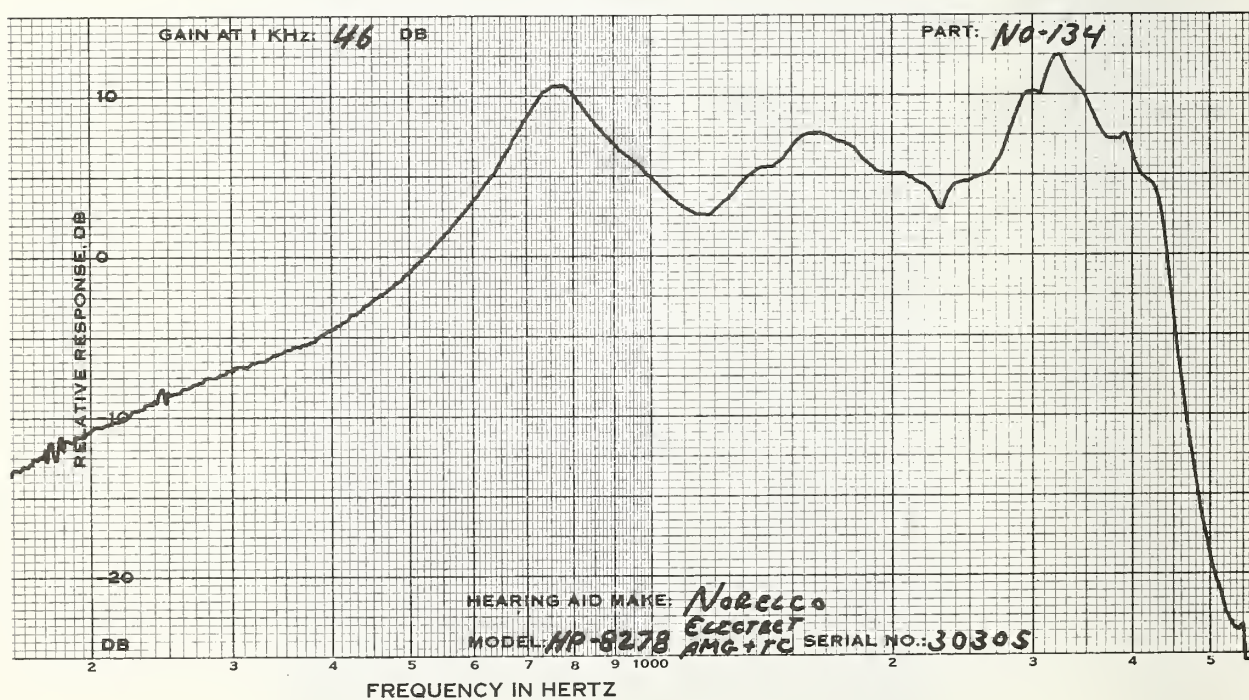
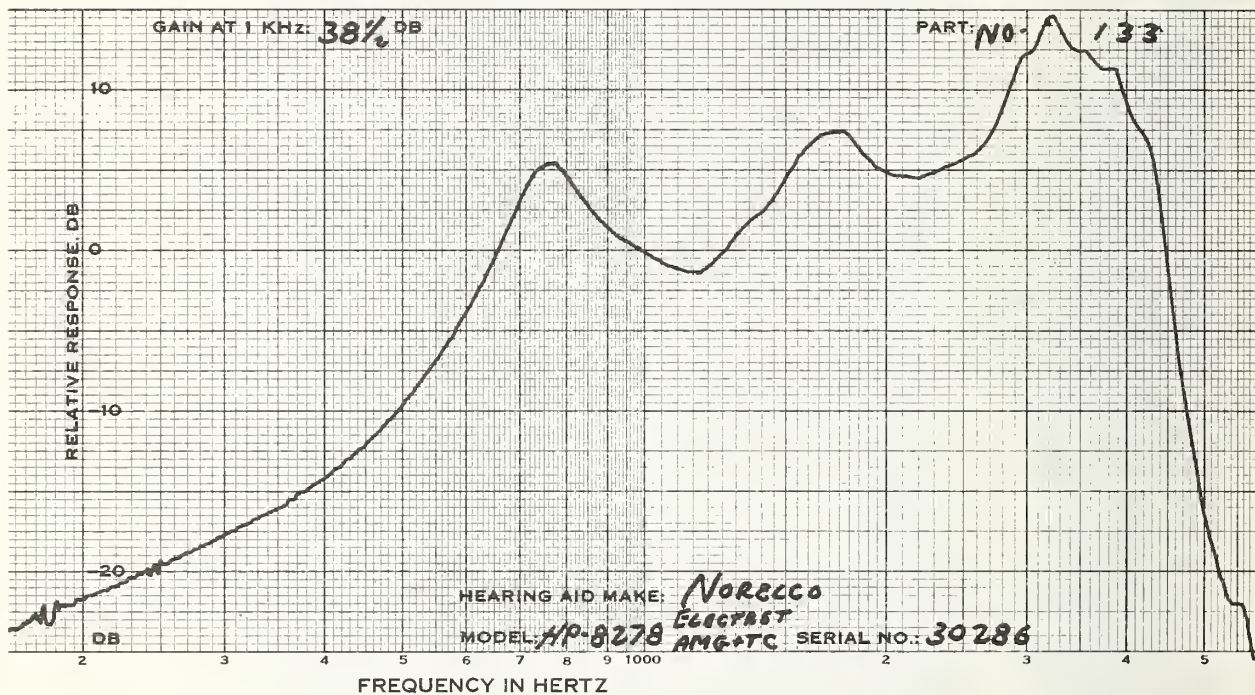
MEASUREMENTS WITH  
FULL VOL CONTROL

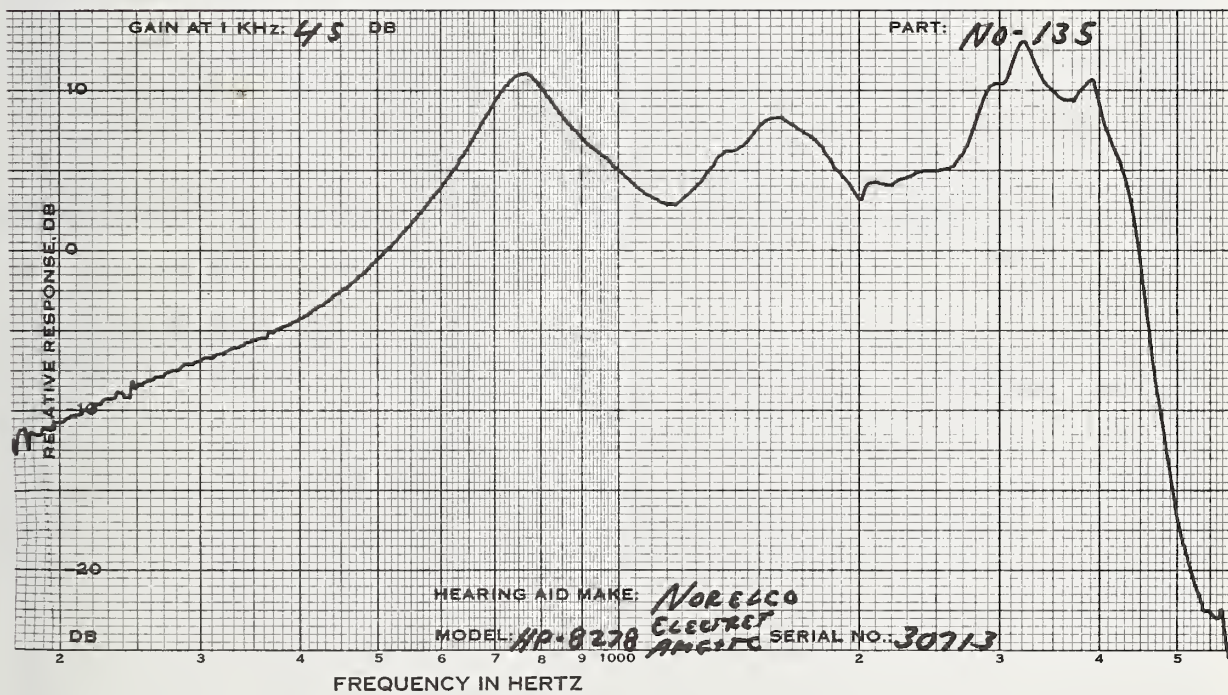
1KHZ GAIN DB	46.0	56.0	53.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.0	78.0	77.0
OUTPUT LEVEL DB	116.0	118.0	118.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	38.5	46.0	45.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 5	3 13	2 12
700 HZ %	1 1	1 4	1 3
900 HZ %	2 5	1 7	1 6
MAX DIST %	4 41	4 37	6 37
FREQ OF MAX DIS	1680 1540	2000 1570	1680 1540
S/N RATIO DB			
1KHZ SIGNAL	36.0	41.5	39.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.7	.9	.9
65 DB INPUT	.7	.9	.9
BATTERY VOLTAGE	1.35	1.35	1.35

N TONE TUBE







NORELCO  
 MODEL:KL6370 SP&TC TONE:N TONE TUBE N TUBING:1 BATTERY:675

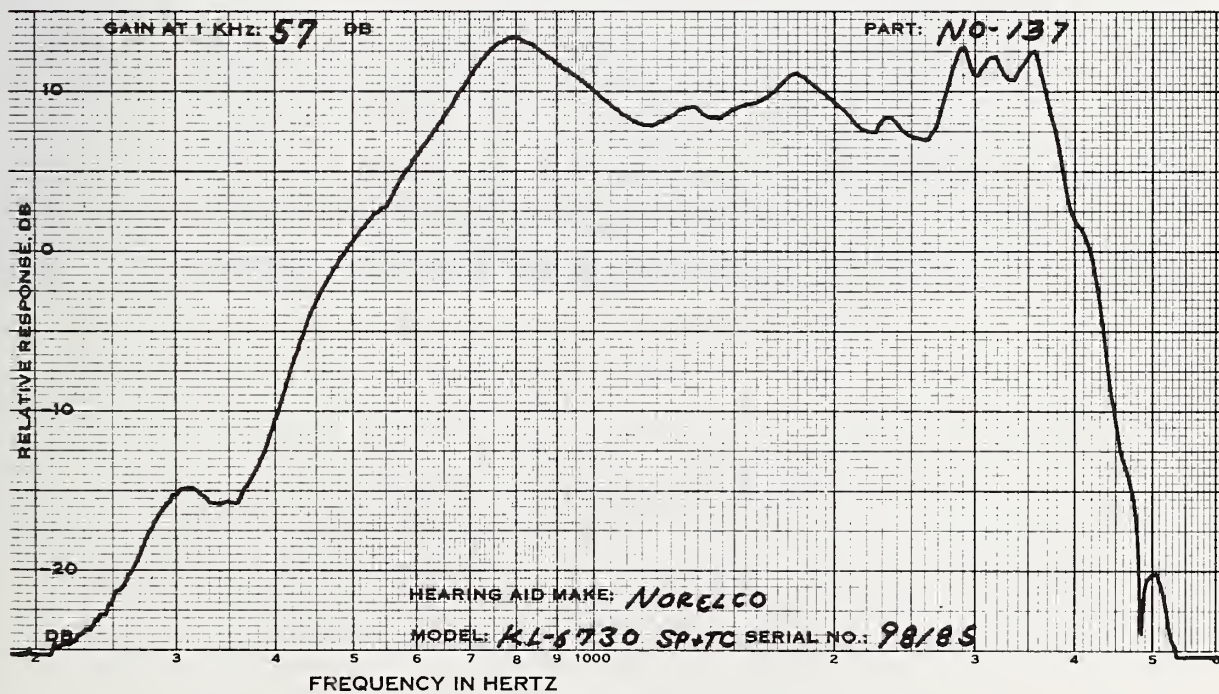
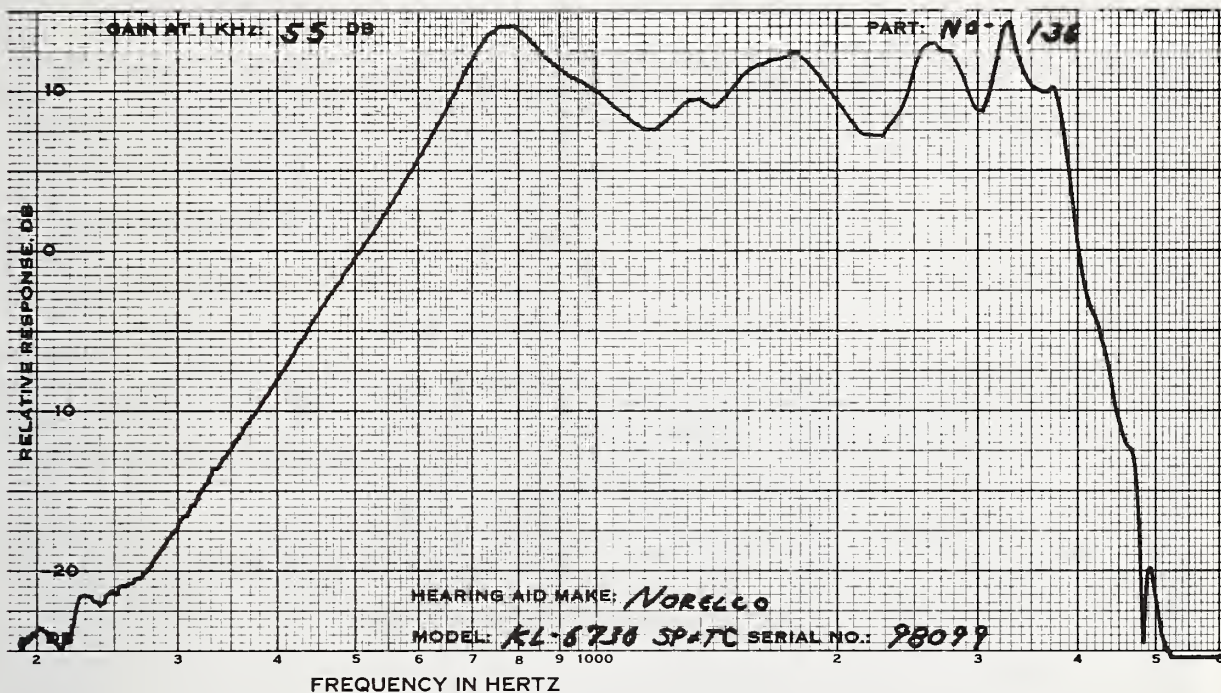
CODE NO-136 NO-137 NO-138  
 SERIAL # 98099 98185 98247  
 DATE JAN 28, 1974

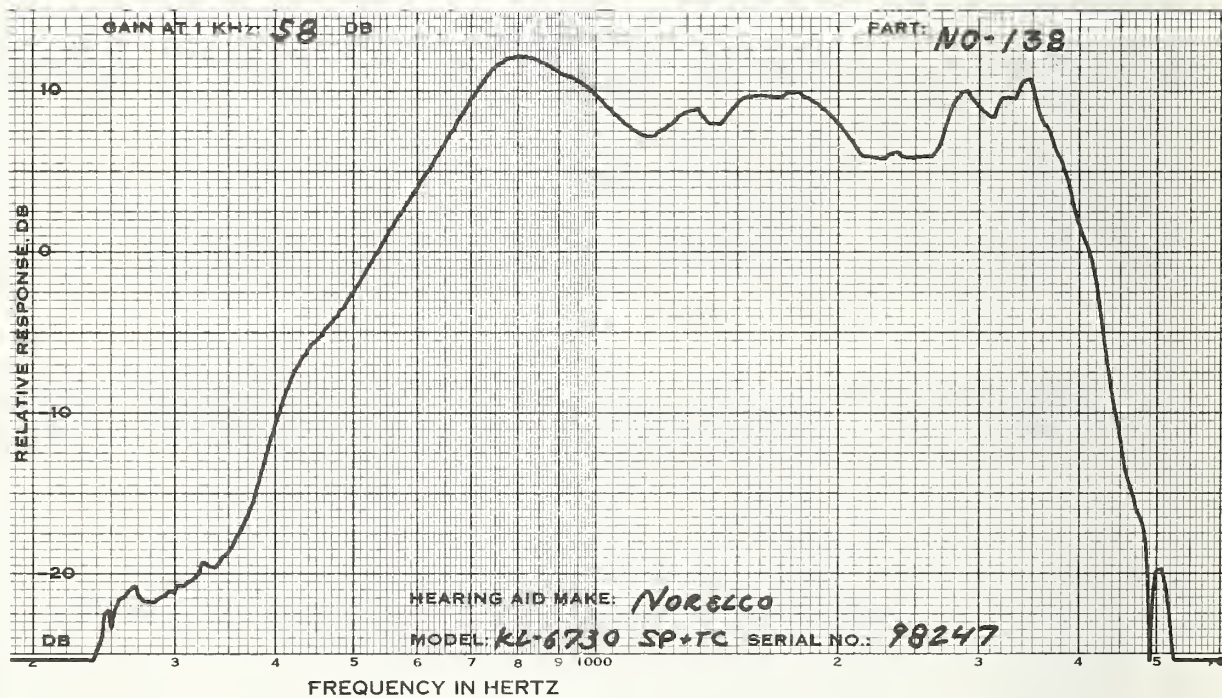
MEASUREMENTS WITH  
 FULL VOL CONTROL

	NO-136	NO-137	NO-138
1KHZ GAIN DB	55.0	57.0	61.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	76.5	80.0
OUTPUT LEVEL DB	128.5	127.0	128.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

	55.0(FULL)	57.0(FULL)	58.0
1KHZ GAIN DB	55.0(FULL)	57.0(FULL)	58.0
HARMONIC DIST			
@INPUT LEVEL DB	61.0 71.0	60.0 70.0	60.0 70.0
500 HZ %	2 7	1 6	3 4
700 HZ %	1 2	1 1	1 1
900 HZ %	3 6	2 3	1 2
MAX DIST %	8 10	4 6	5 11
FREQ OF MAX DIS	1300 1250	1570 1260	1220 1230
S/N RATIO DB			
1KHZ SIGNAL	48.5	49.5	50.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.3	2.3	2.3
65 DB INPUT	3.1	3.2	3.2
BATTERY VOLTAGE	1.37	1.37	1.35







NORELCO  
 MODEL:KL6731 VTC PC:5 GAIN:MAX TUBING:1'' OE BATTERY:675

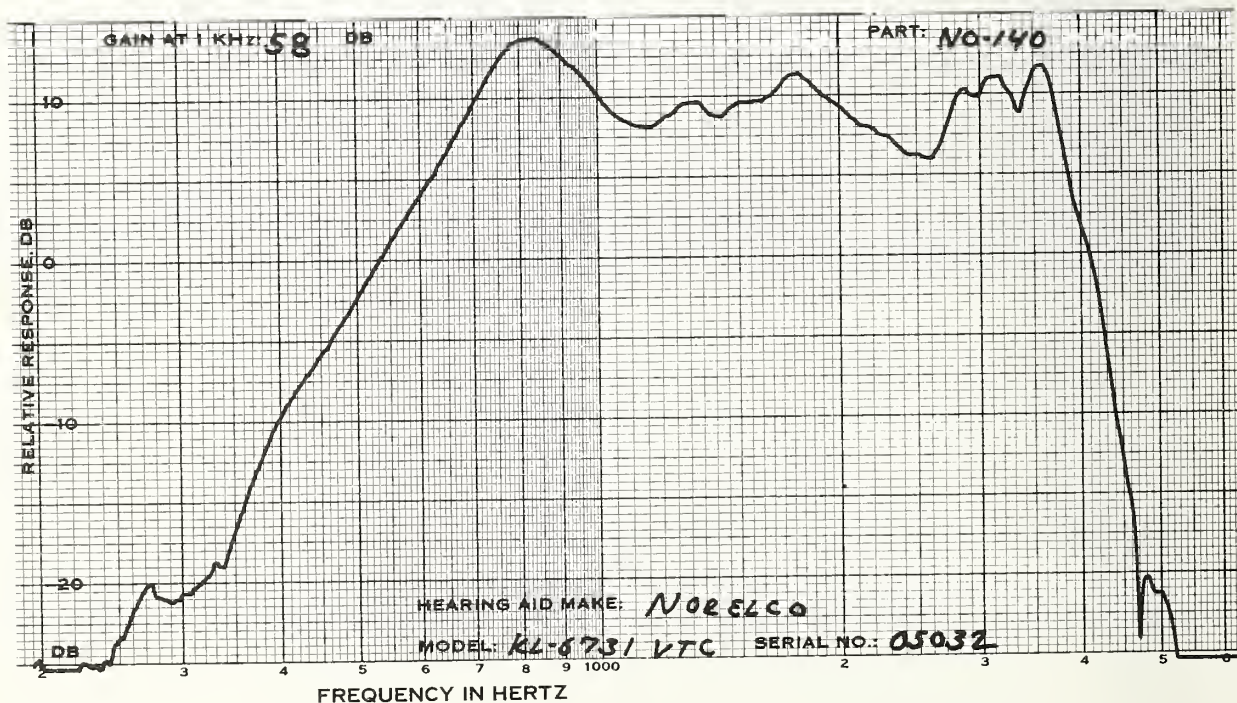
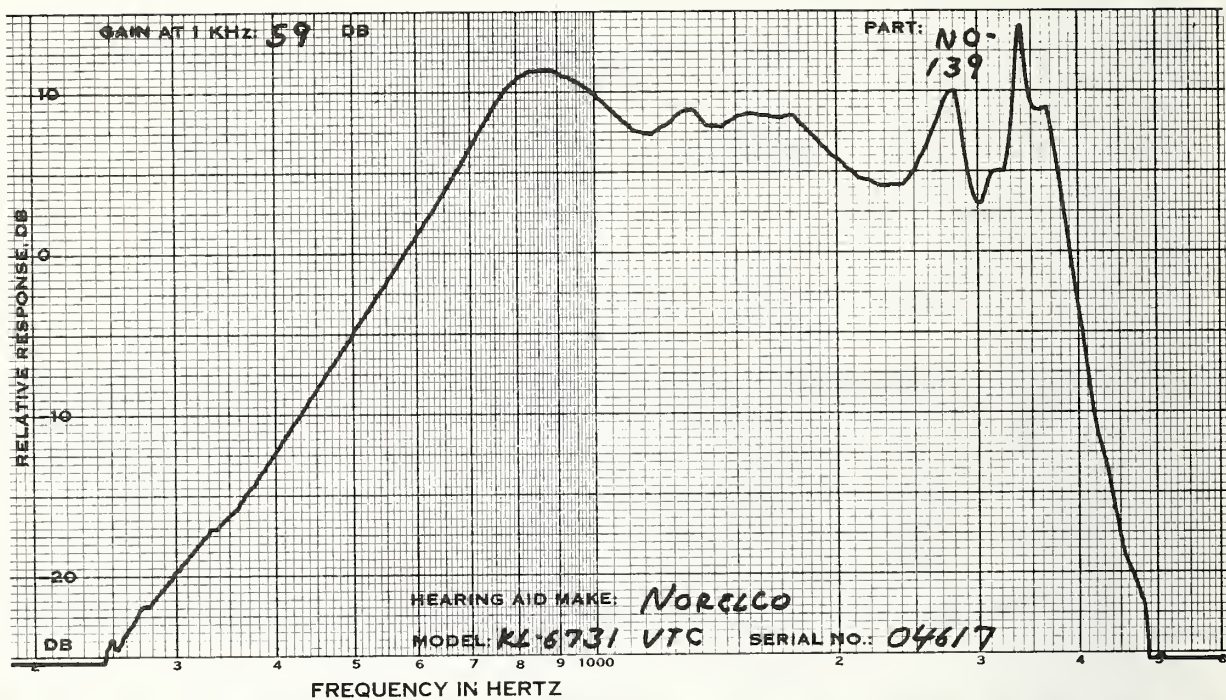
CODE	NO-139	NO-140	NO-141
SERIAL #	04617	05032	05193
DATE		JAN 28, 1974	

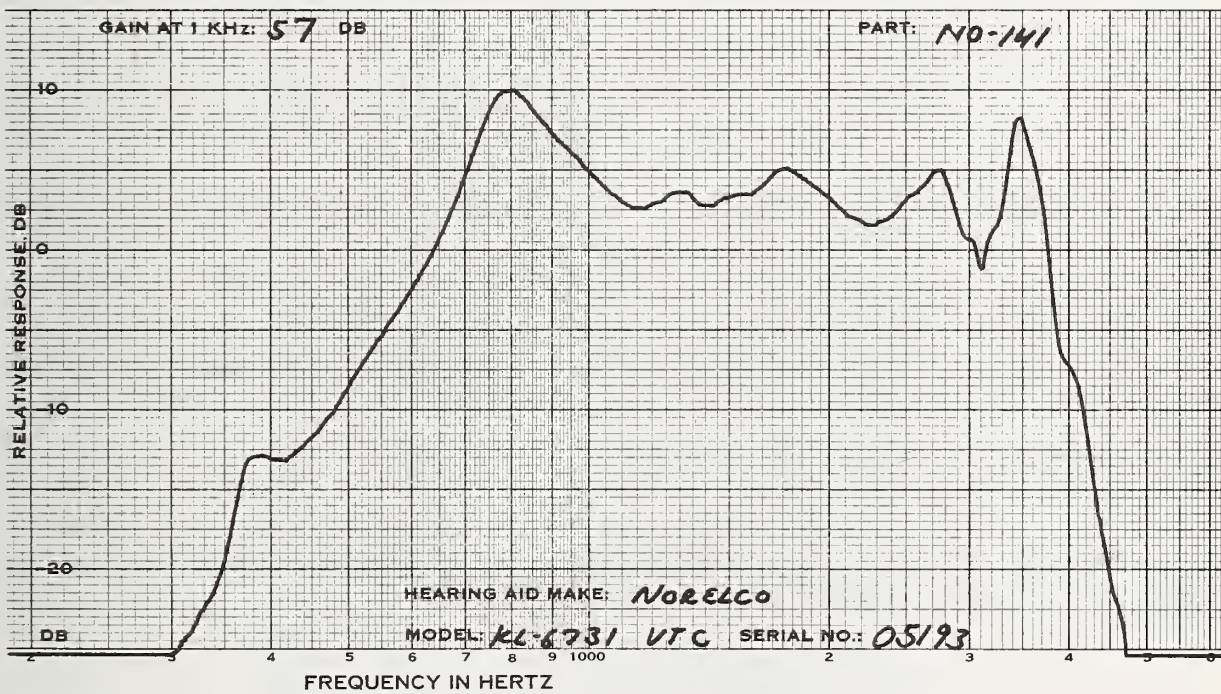
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	59.0	61.0	60.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	78.5	79.0	77.0
OUTPUT LEVEL DB	127.0	128.0	128.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	59.0(FULL)	58.0	57.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 8	3 6	2 5
700 HZ %	1 2	1 2	1 2
900 HZ %	2 3	1 3	2 5
MAX DIST %	8 11	5 14	7 5
FREQ OF MAX DIS	1150 1240	1210 1210	1190 870
S/N RATIO DB			
1KHZ SIGNAL	51.0	50.0	49.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.3	2.1	2.1
65 DB INPUT	3.2	3.2	3.3
BATTERY VOLTAGE	1.37	1.37	1.36







NORELCO  
MODEL:KL6732 ELECTRET VTC&TC TONE:SEE BELOW TUBING:1 BATTERY:675

CODE	NO-142	NO143A	NO-144
SERIAL #	26296	26947	26993
DATE		JAN 29, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

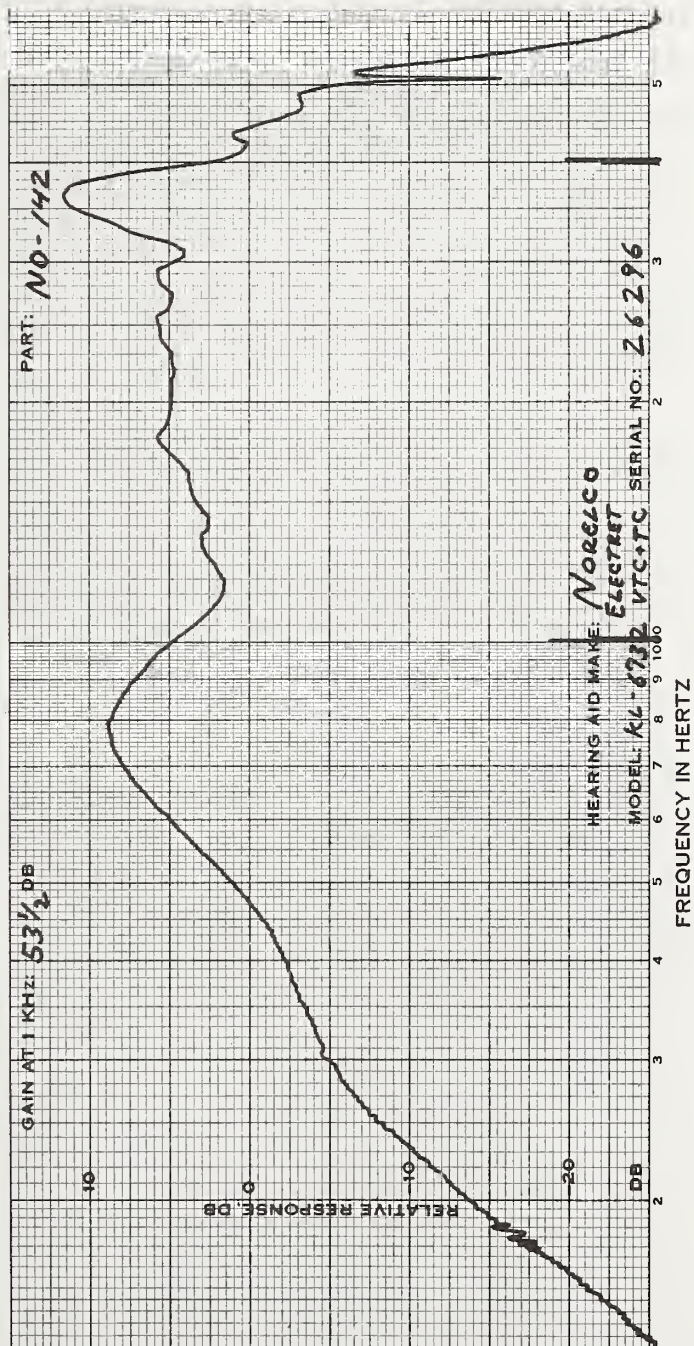
1KHZ GAIN DB	60.0	62.5	57.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.5	76.0	76.5
OUTPUT LEVEL DB	126.0	127.5	123.5

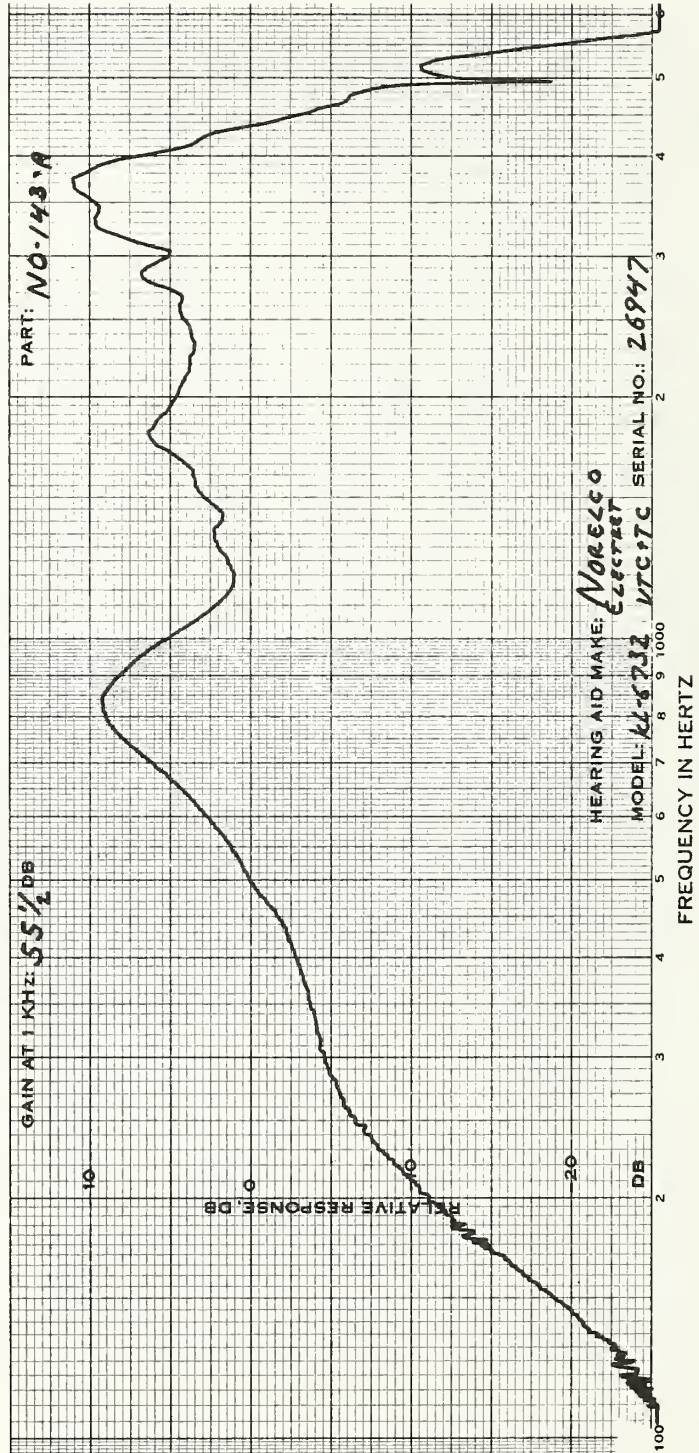
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	53.5	55.5	51.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 6	5 13	8 13
700 HZ %	2 4	2 2	3 8
900 HZ %	2 4	1 5	4 8
MAX DIST %	4 6	5 13	8 13
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.0	44.5	41.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.4	2.4	2.4
65 DB INPUT	3.5	3.5	3.1
BATTERY VOLTAGE	1.35	1.35	1.35

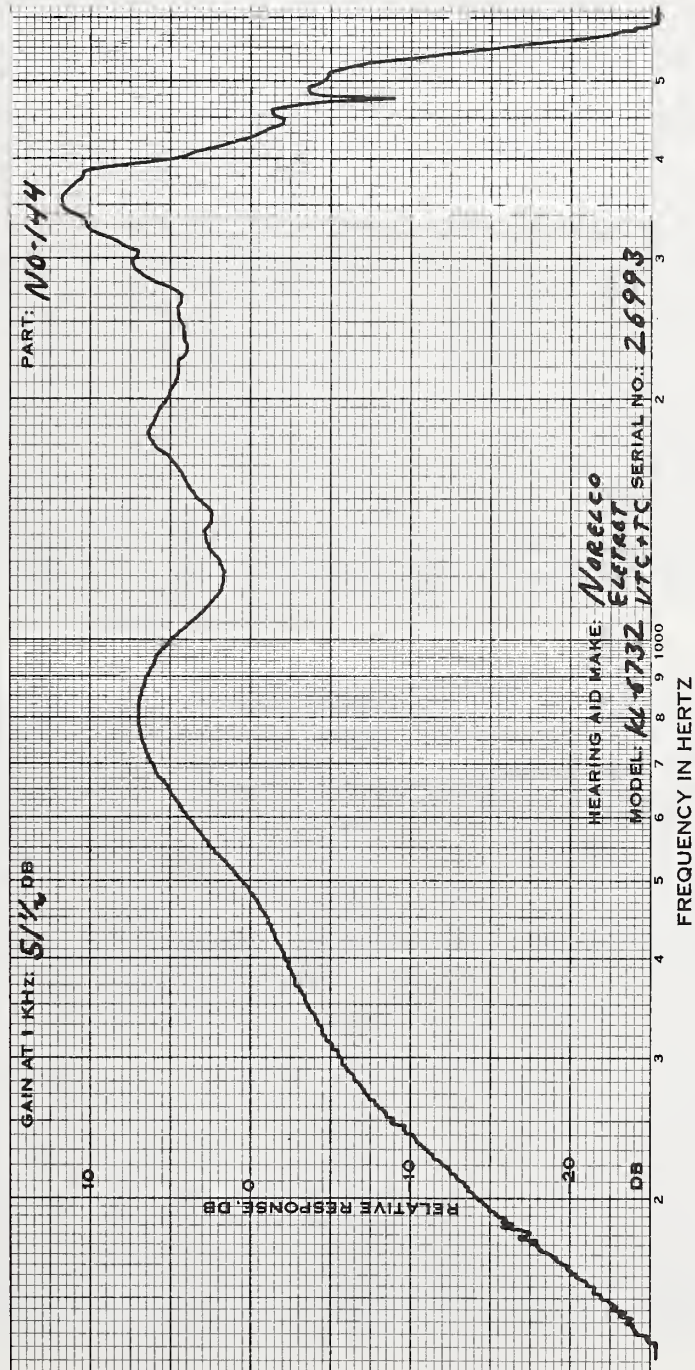
AMG:MAX TC:N PC:5 N TONE TUBE

NO-143,SERIAL #26908, WAS DETERMINED TO BE INOPERATIVE  
BY THE VA BEFORE COMING INTO OUR POSSESSION.









OTARION  
MODEL:COMPETTE TONE:NONE TUBING:1 1/2 BATTERY:S13

OE

CODE	OA-250	OA-251	OA-252
SERIAL #	42625C	42683C	42717C
DATE		MAY 7, 1974	

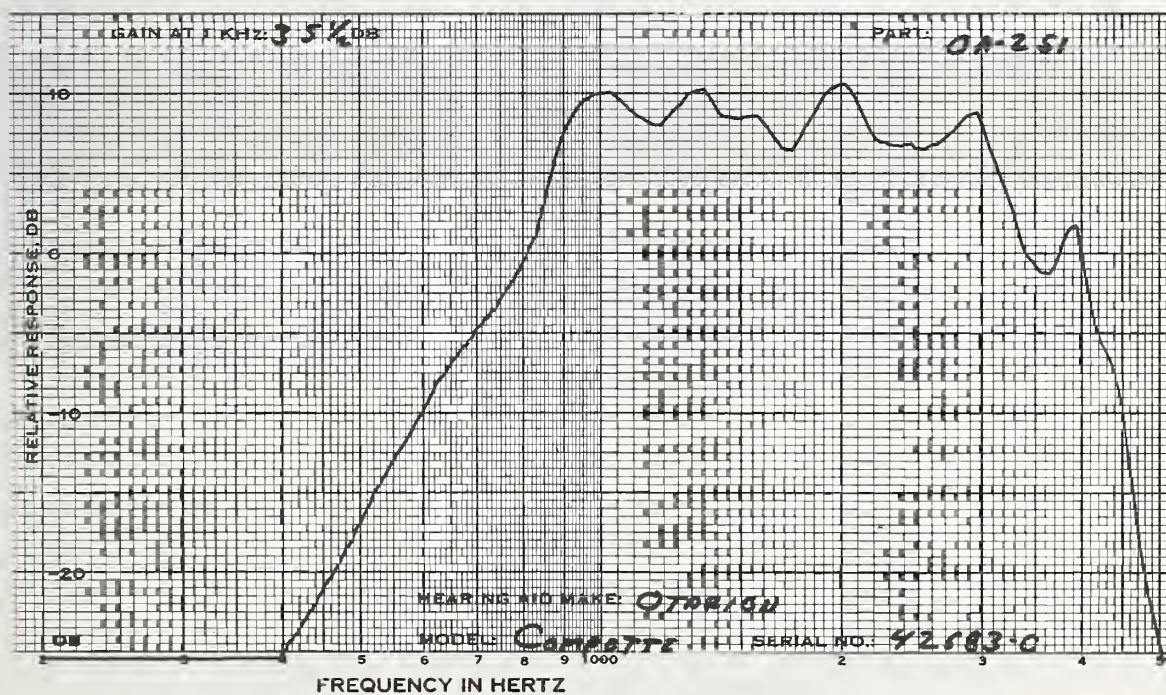
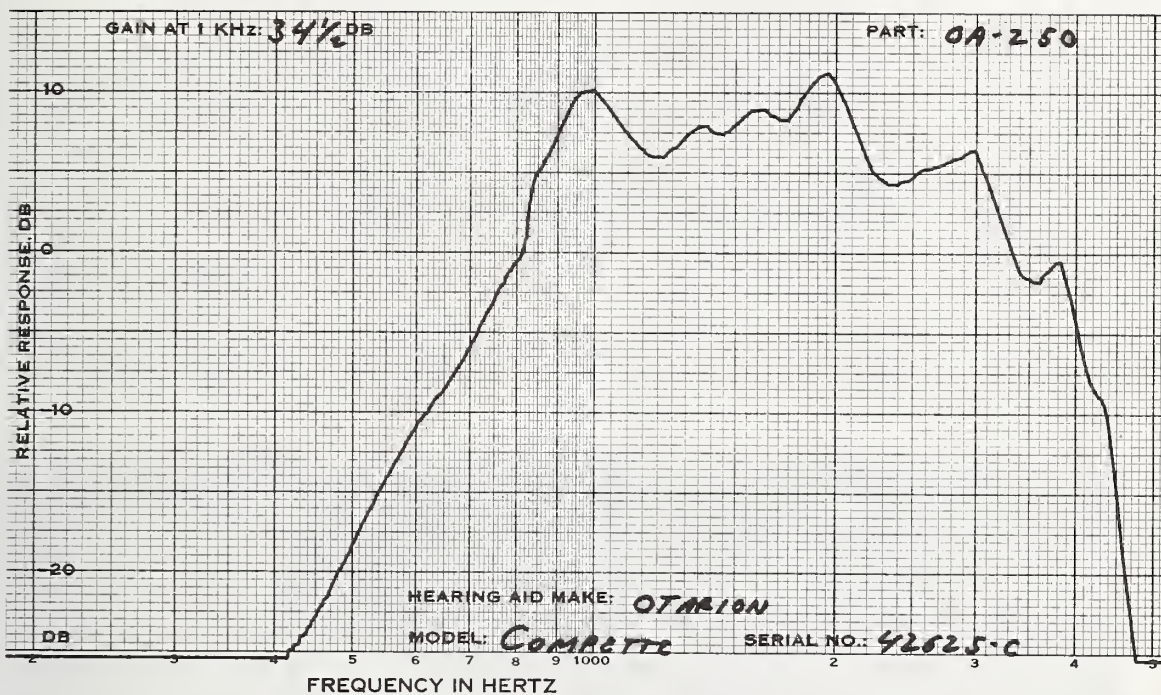
MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	47.0	45.5	39.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.0	74.5	74.0
OUTPUT LEVEL DB	102.0	102.0	101.0

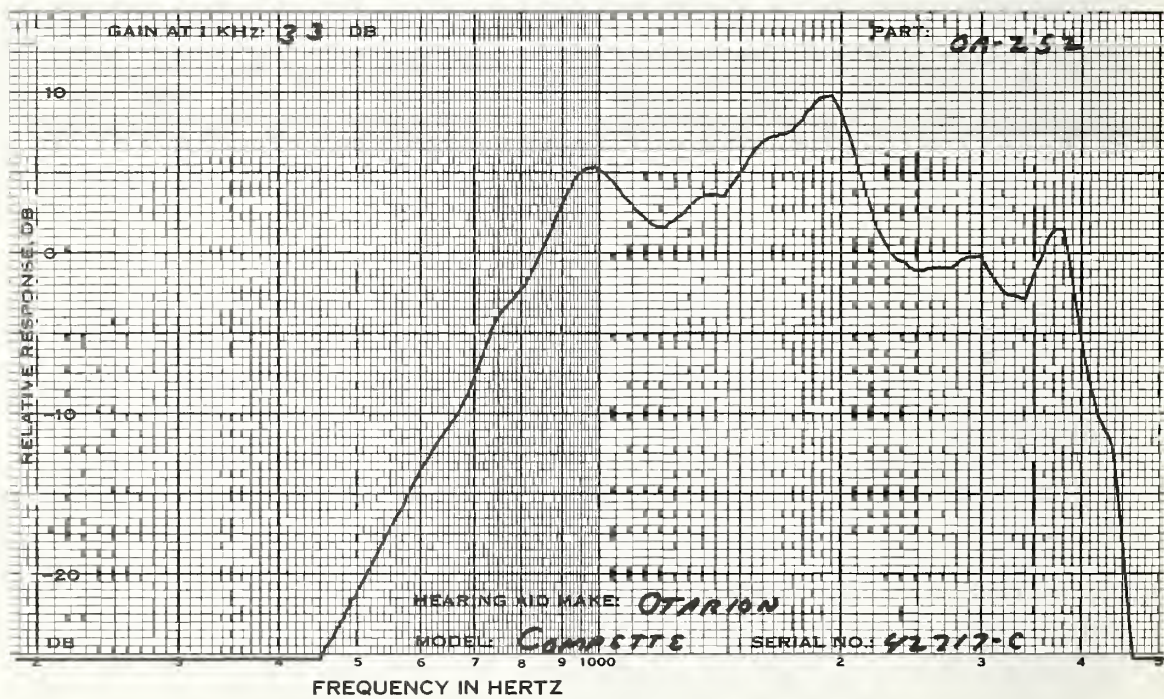
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	34.5	35.5	33.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	24 11	22 9	20 9
700 HZ %	3 2	3 1	2 1
900 HZ %	0 0	0 0	1 0
MAX DIST %	24 11	22 9	20 9
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	50.5	51.5	49.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.7	.8
65 DB INPUT	.8	.7	.8
BATTERY VOLTAGE	1.57	1.57	1.57

THE GAIN ON OA-251 AND OA-252 HAD TO BE REDUCED SLIGHTLY  
TO PREVENT FEEDBACK BEFORE BEGINNING THE TEST.







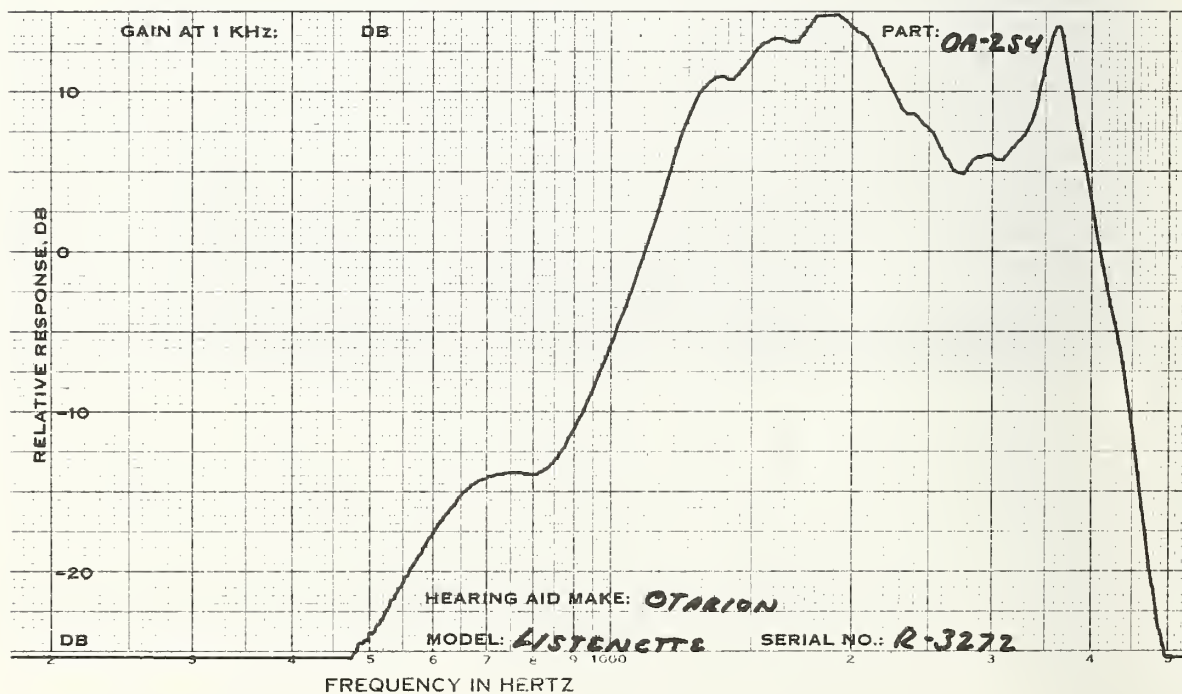
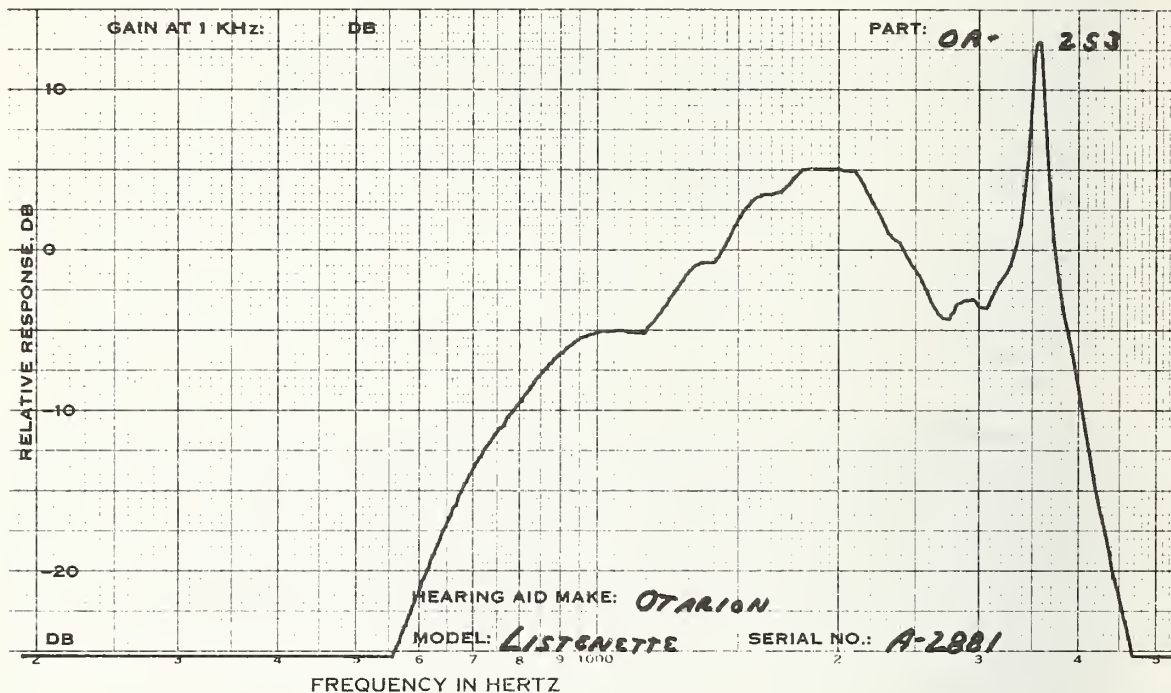
OTARION			IE
MODEL:LISTENETTE	TONE:NONE	MED SIZE NUB	BATTERY:S13
CODE	OA-253	OA-254	OA255A
SERIAL #	A2881	R3272	R4022
DATE	MAY 15, 1974	MAY 15, 1974	MAY 21, 1974

MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	34.5	30.0	40.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.0	75.5	77.5
OUTPUT LEVEL DB	111.0	114.5	113.5

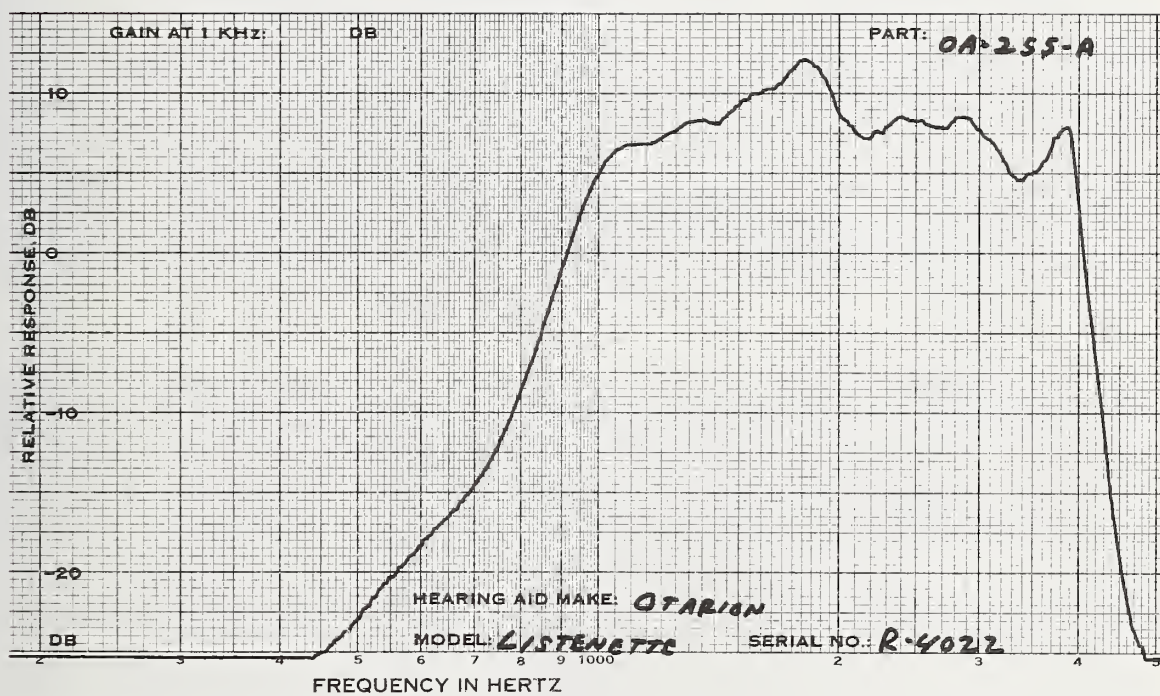
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	34.5(FULL)	30.0(FULL)	40.0(FULL)
HARMONIC DIST			
2INPUT LEVEL DB	61.0 71.0	60.0 70.0	61.0 71.0
500 HZ %	40 20	43 28	47 31
700 HZ %	5 3	20 18	22 20
900 HZ %	4 3	26 29	6 8
MAX DIST %	40 20	43 55	47 31
FREQ OF MAX DIS	500 500	500 1770	500 500
S/N RATIO DB			
1KHZ SIGNAL	39.0	32.5	43.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	.9	.9
65 DB INPUT	.9	.9	.9
BATTERY VOLTAGE	1.57	1.58	1.56

THE GAIN ON OA-253 WAS REDUCED SLIGHTLY BEFORE BEGINNING THE TEST TO PREVENT FEEDBACK.

OA-255, SERIAL # R3349 WAS CONSIDERED DEFECTIVE BECAUSE OF AN EXTREMELY LOW GAIN (1 DB AT 1 KHZ). ALSO SOMETHING RATTLED WITHIN THE INSTRUMENT.







OTARION  
 MODEL:TONETTE TONE:NONE TUBING:1 1/2 BATTERY:S13

OE

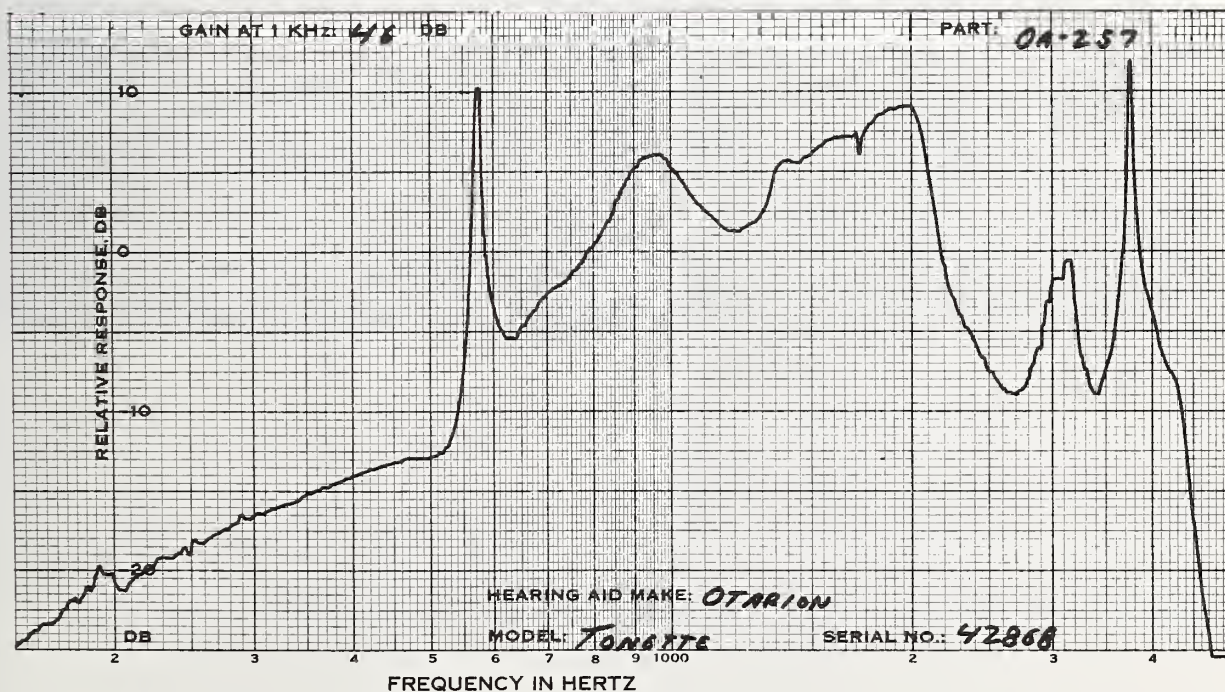
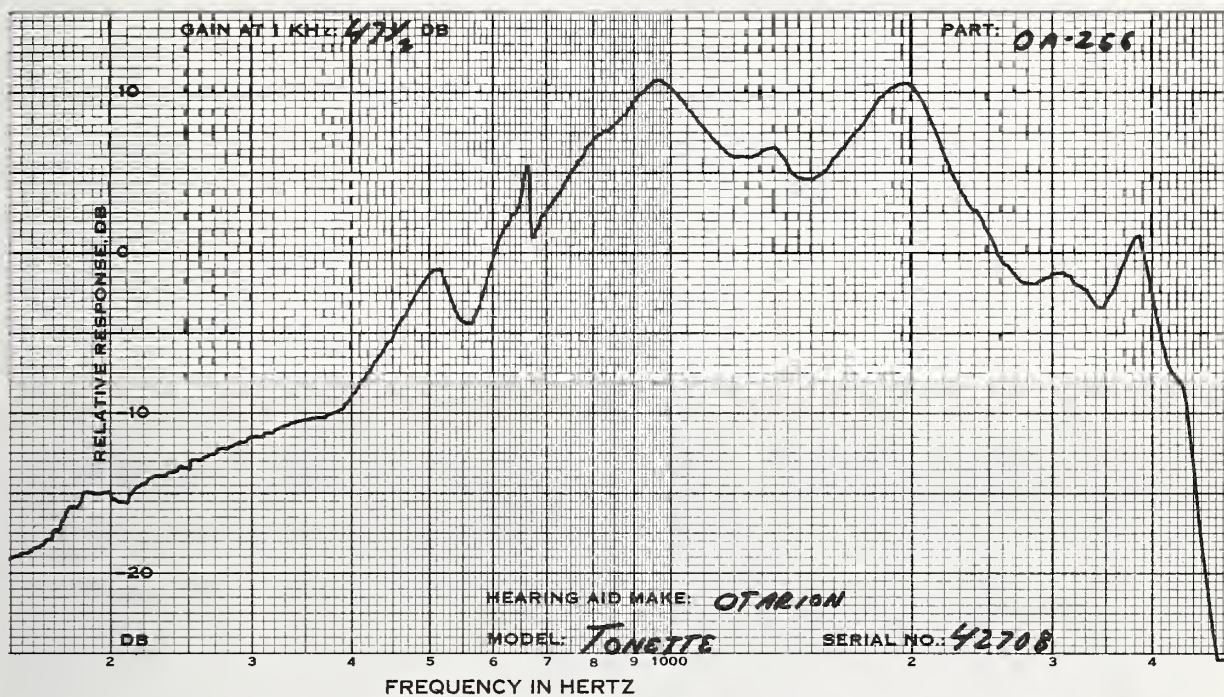
CODE	OA-256	OA-257	OA-258
SERIAL #	42708	42868	42869
DATE		MAY 7, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

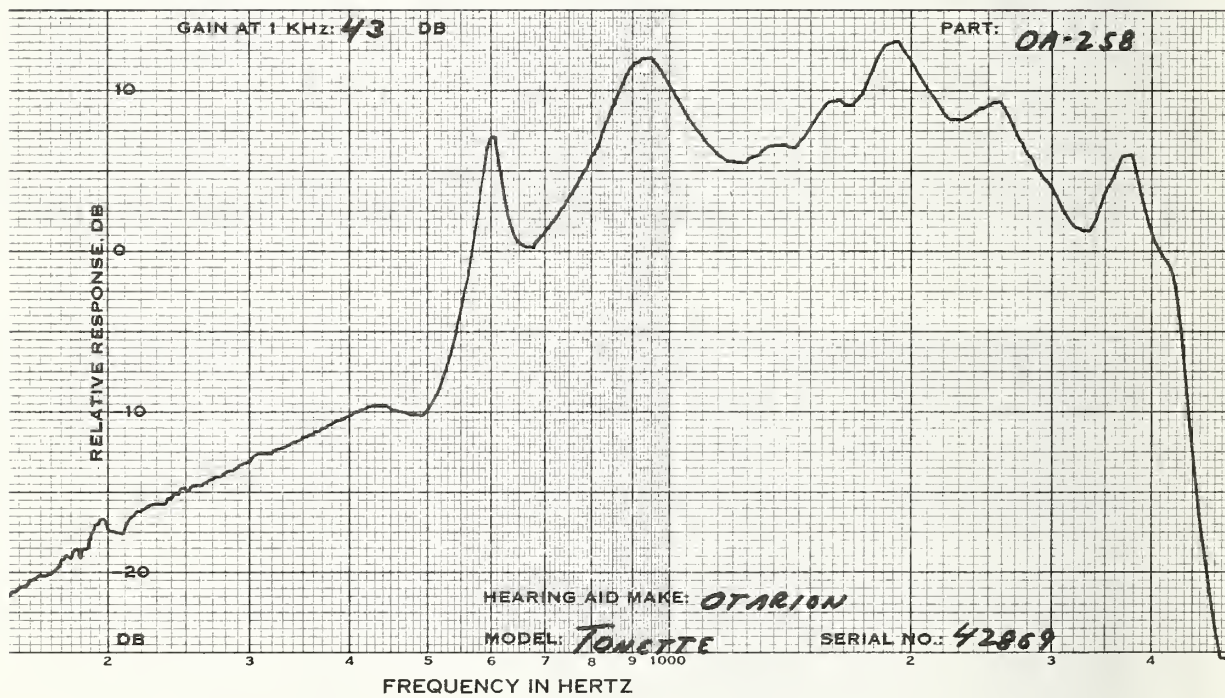
1KHZ GAIN DB	47.5	46.0	43.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.5	74.5	76.5
OUTPUT LEVEL DB	116.0	115.5	114.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	47.5(FULL)	46.0(FULL)	43.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	61.5 71.5	61.0 71.0	62.0 72.0
500 HZ %	2 16	7 8	15 39
700 HZ %	1 3	1 3	4 18
900 HZ %	1 1	0 1	2 10
MAX DIST %	2 16	34 52	29 67
FREQ OF MAX DIS	500 500	560 560	590 590
S/N RATIO DB			
1KHZ SIGNAL	47.5	46.5	46.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.0	1.0
65 DB INPUT	1.0	1.0	1.0
BATTERY VOLTAGE	1.57	1.57	1.58







OTICON 08  
 MODEL:375 PPX TONE:H RECEIVER:CFD-8 BATTERY:502

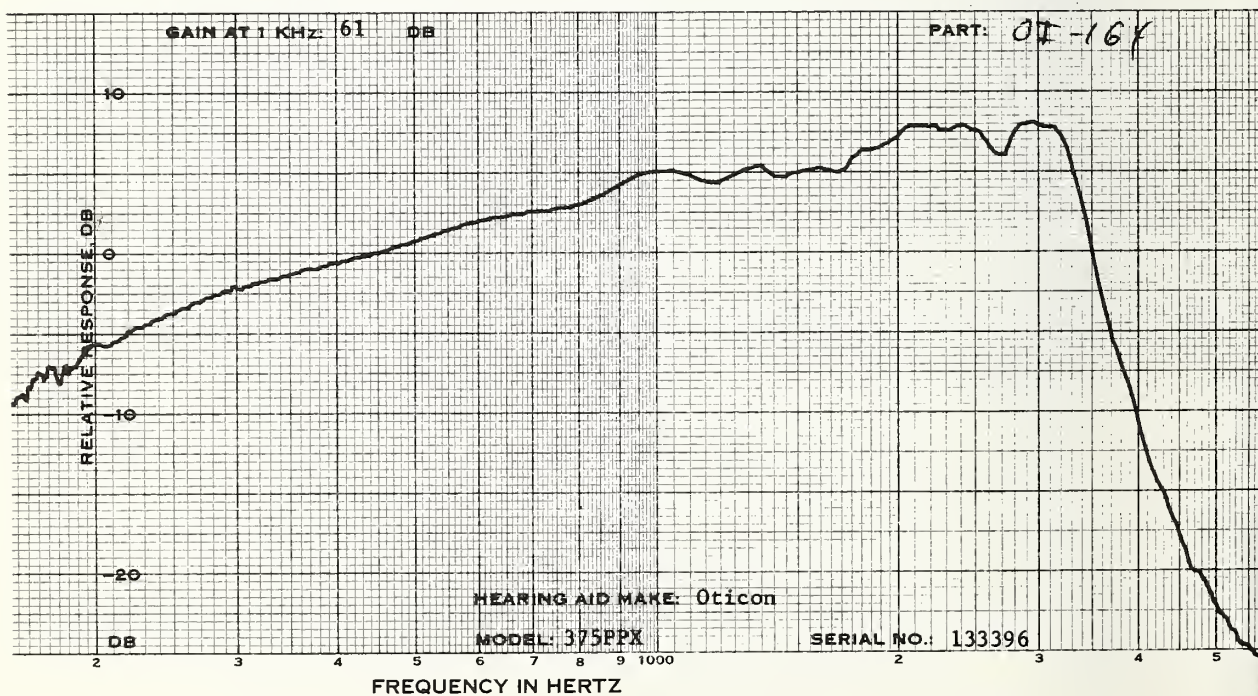
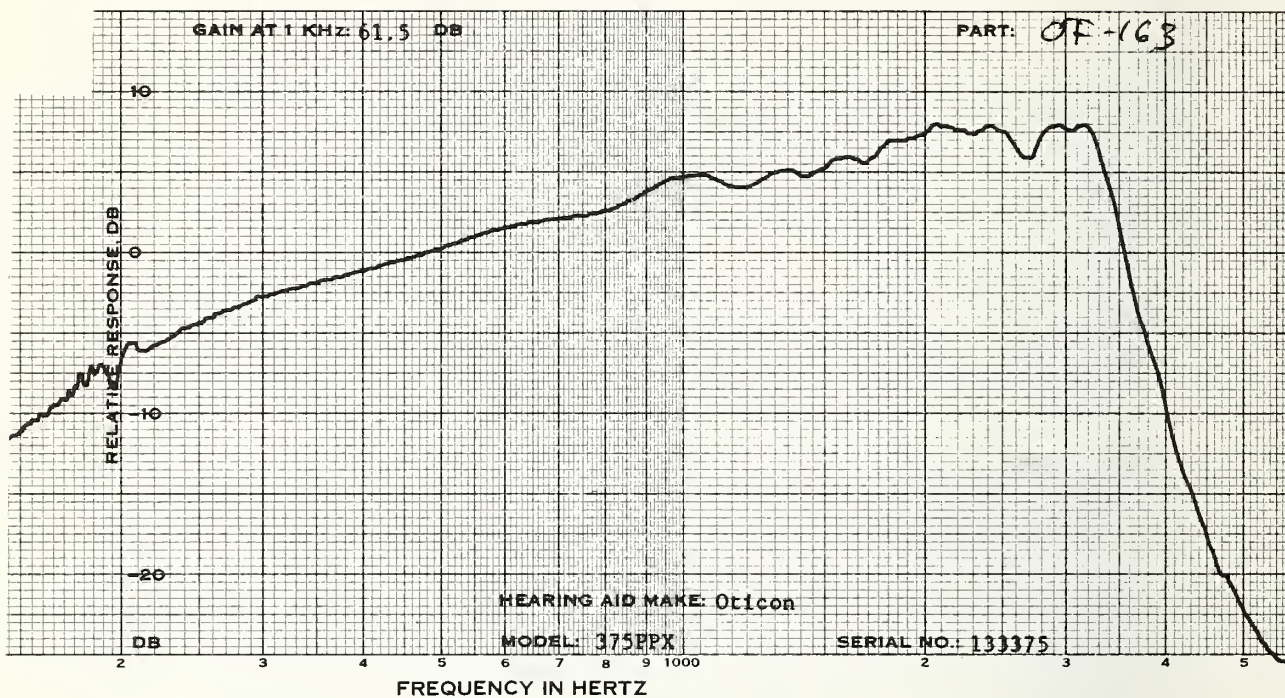
CODE	OI-163	OI-164	OI-165
SERIAL #	133375	133396	133413
DATE		MAR 13, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

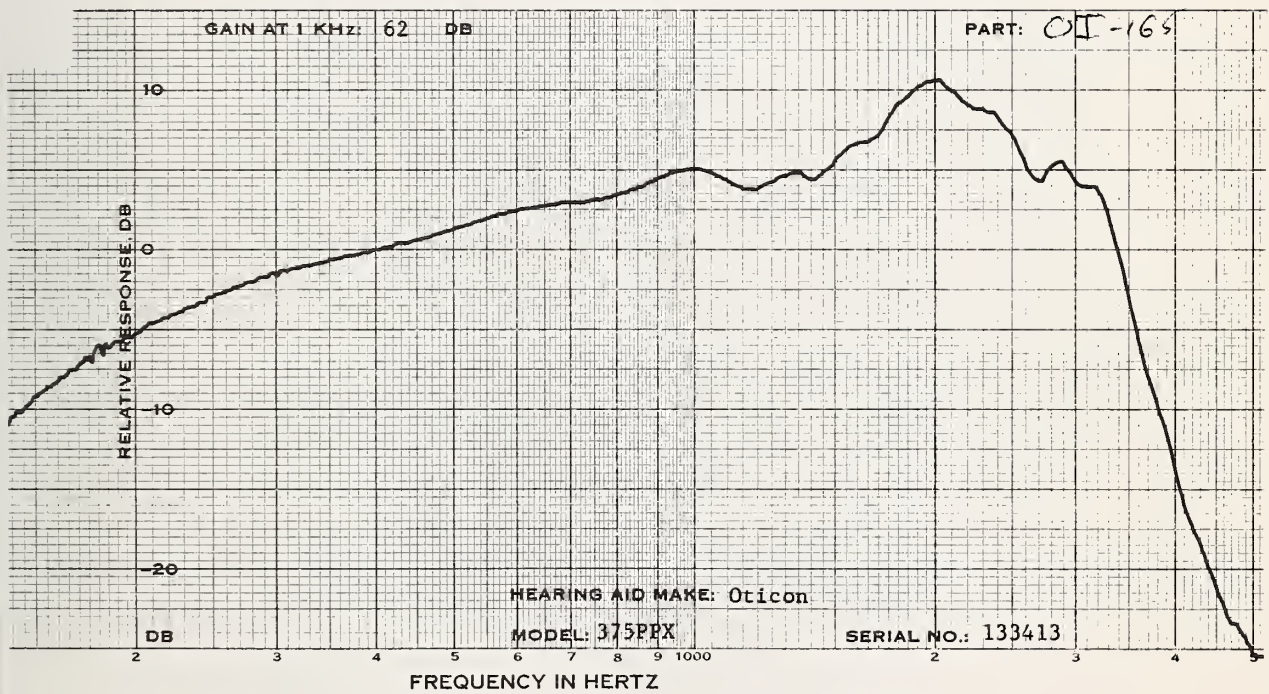
1KHZ GAIN DB	72.0	72.0	73.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	70.0	70.0	72.0
OUTPUT LEVEL DB	131.0	131.5	132.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	61.5	61.0	62.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 3	3 3	2 3
700 HZ %	3 6	3 6	4 6
900 HZ %	2 5	2 5	2 6
MAX DIST %	3 6	3 6	4 6
FREQ OF MAX DIS	700 700	700 700	700 900
S/N RATIO DB			
1KHZ SIGNAL	38.5	38.5	38.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.0	2.9	2.7
65 DB INPUT	14.8	17.0	16.0
BATTERY VOLTAGE	1.48	1.47	1.47







OTICON  
MODEL:375PPZ TONE:H RECEIVER:CFD-5 BATTERY:502 OE

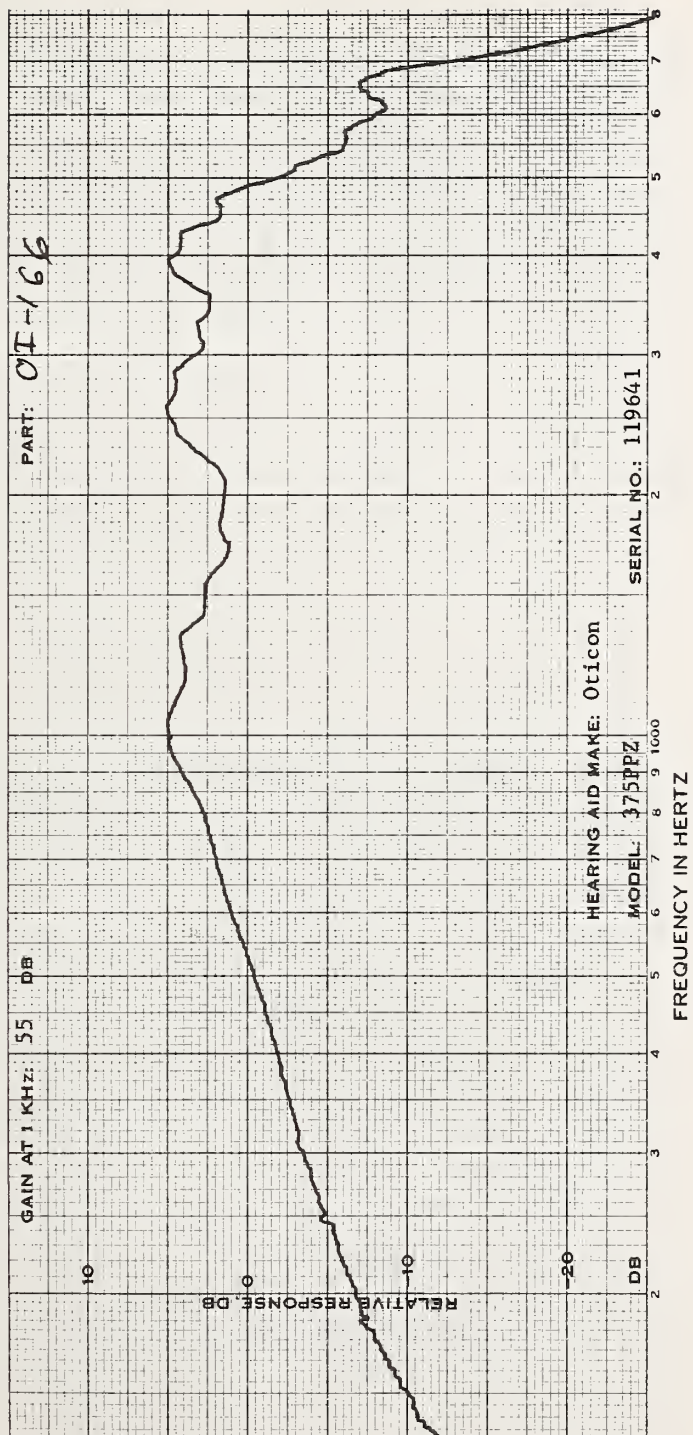
CODE	OI-166	OI-167	OI-168
SERIAL #	119641	120206	120216
DATE		APR 16, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

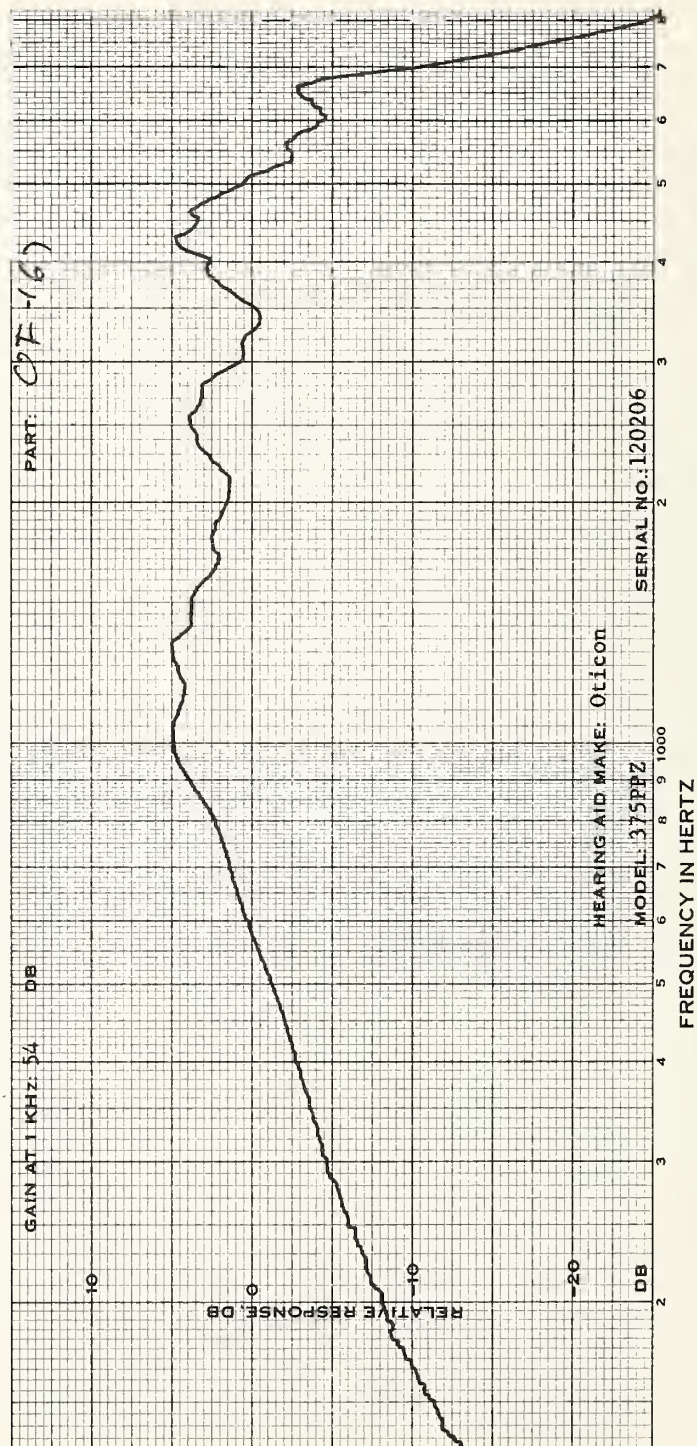
1KHZ GAIN DB	63.5	62.0	62.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	72.0	74.0	73.0
OUTPUT LEVEL DB	124.0	123.0	124.5

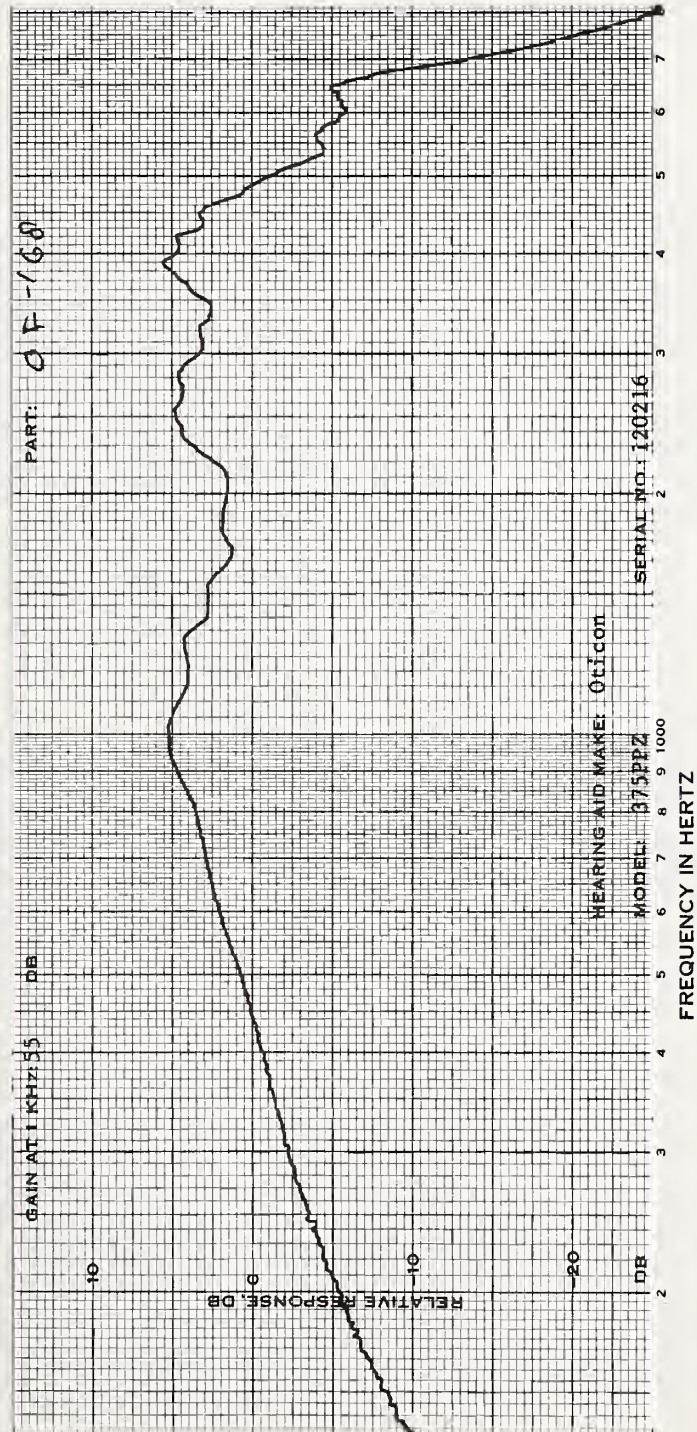
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	55.0	54.0	55.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 3	2 1	1 2
700 HZ %	2 4	1 2	2 5
900 HZ %	2 4	2 4	3 5
MAX DIST %	2 4	2 4	3 5
FREQ OF MAX DIS	900 900	900 900	900 900
S/N RATIO DB			
1KHZ SIGNAL	39.0	39.0	37.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.6	3.1	3.0
65 DB INPUT	6.7	34.0	32.0
BATTERY VOLTAGE	1.50	1.48	1.50









OTICON  
MODEL:565 SZ TONE:NONE TUBING:1" BATTERY:675 OE

CODE	OI-169	OI-170	OI-171
SERIAL #	10990	11006	11013
DATE		MAR 15, 1974	

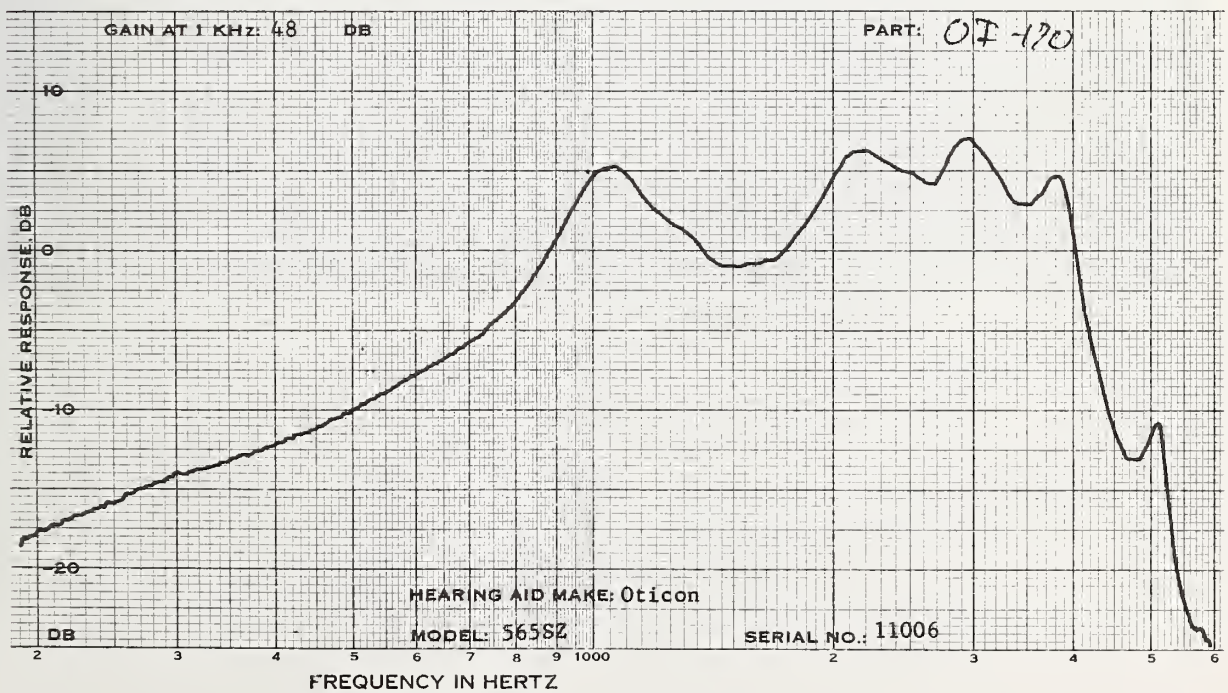
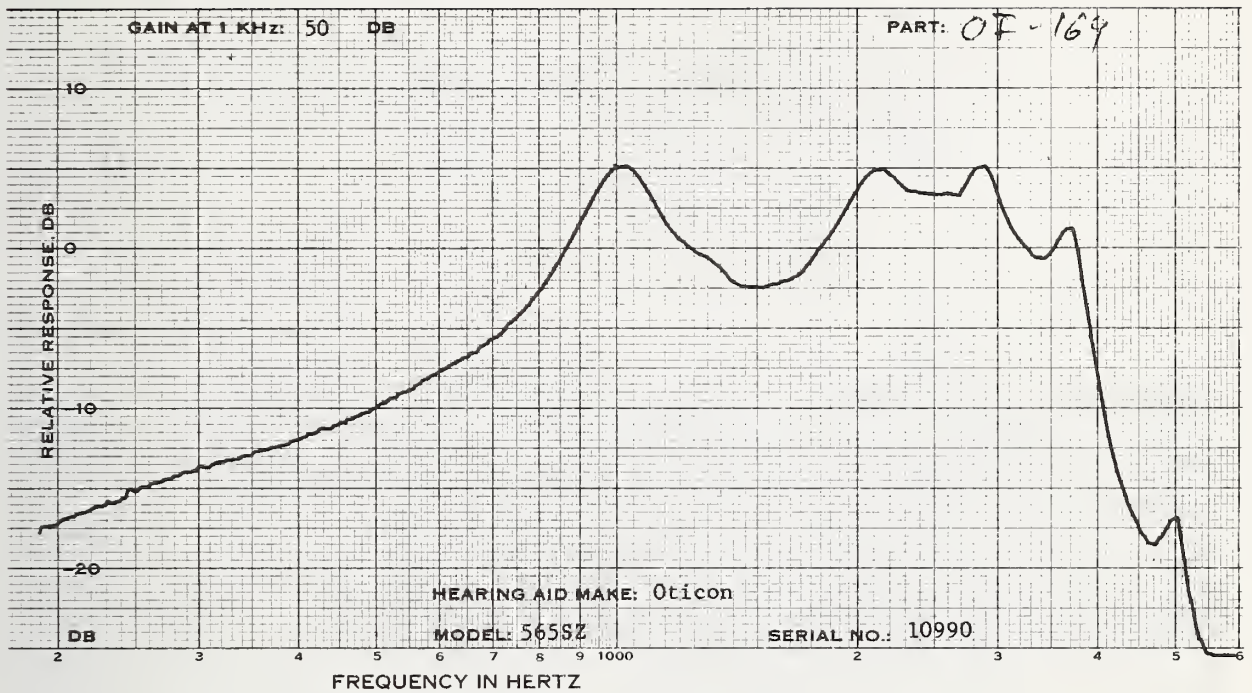
MEASUREMENTS WITH  
FULL VOL CONTROL

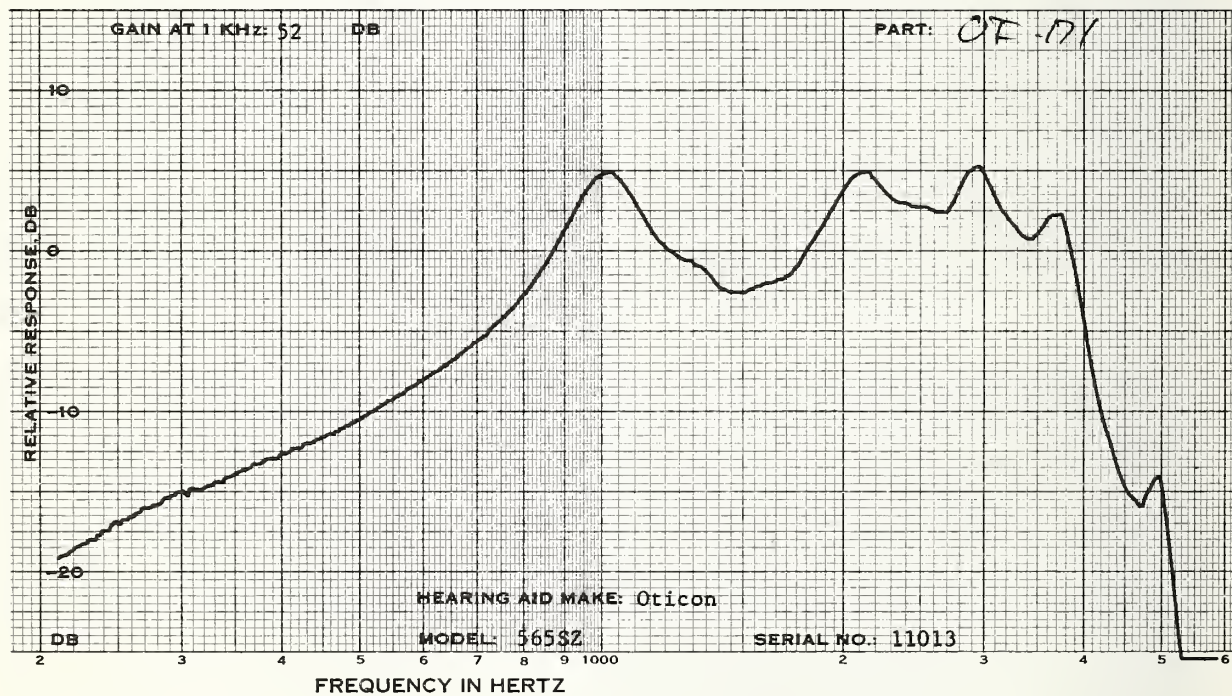
1KHZ GAIN DB	50.0	48.0	52.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	87.0	87.0	89.0
OUTPUT LEVEL DB	121.0	120.5	121.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	50.0(FULL)	48.0(FULL)	52.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	64.5 74.5	64.5 74.5	62.5 72.5
500 HZ %	7 15	7 19	7 11
700 HZ %	2 5	2 9	2 4
900 HZ %	1 5	1 10	1 5
MAX DIST %	7 26	7 42	7 34
FREQ OF MAX DIS	500 1460	500 1530	500 1480
S/N RATIO DB			
1KHZ SIGNAL	46.0	44.5	45.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.3	1.6	1.8
65 DB INPUT	1.3	1.6	1.8
BATTERY VOLTAGE	1.38	1.39	1.39







OTICON  
MODEL:565 SZ LDC -TONE:H OUT:MAX TUBING:1'' SPEC OE BATTERY:675

CODE	OI-172	OI-173	OI-174
SERIAL #	15367	15429	15432
DATE		MAR 18, 1974	

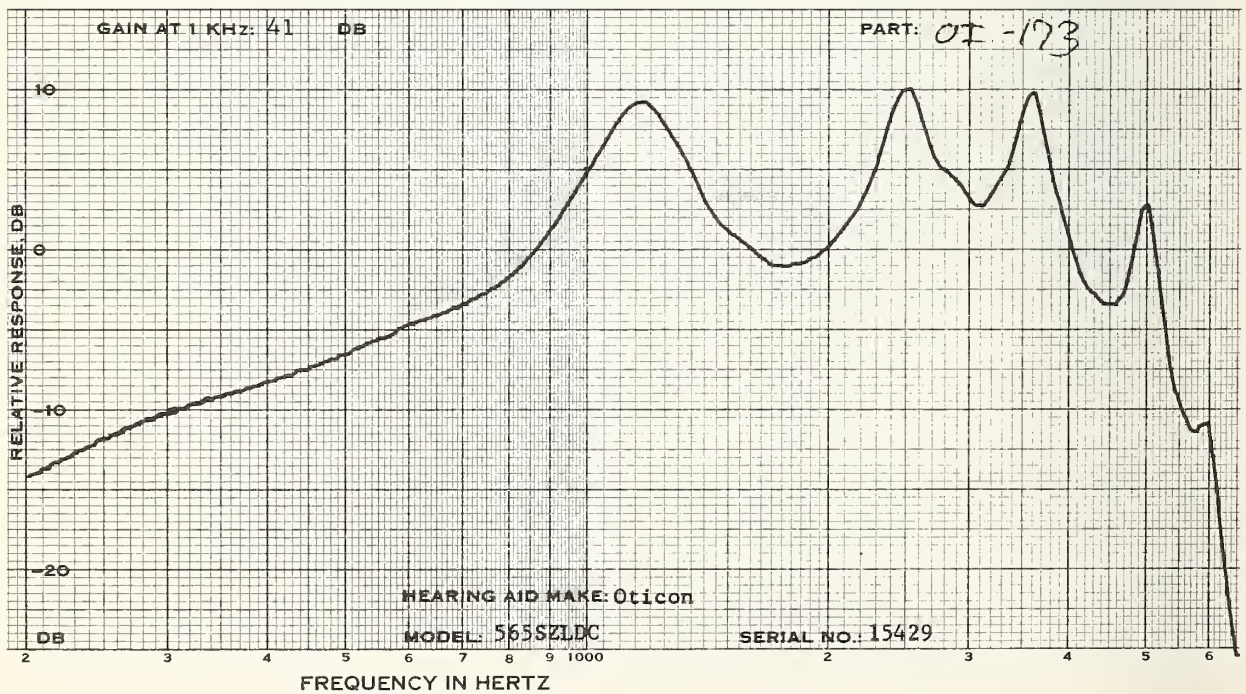
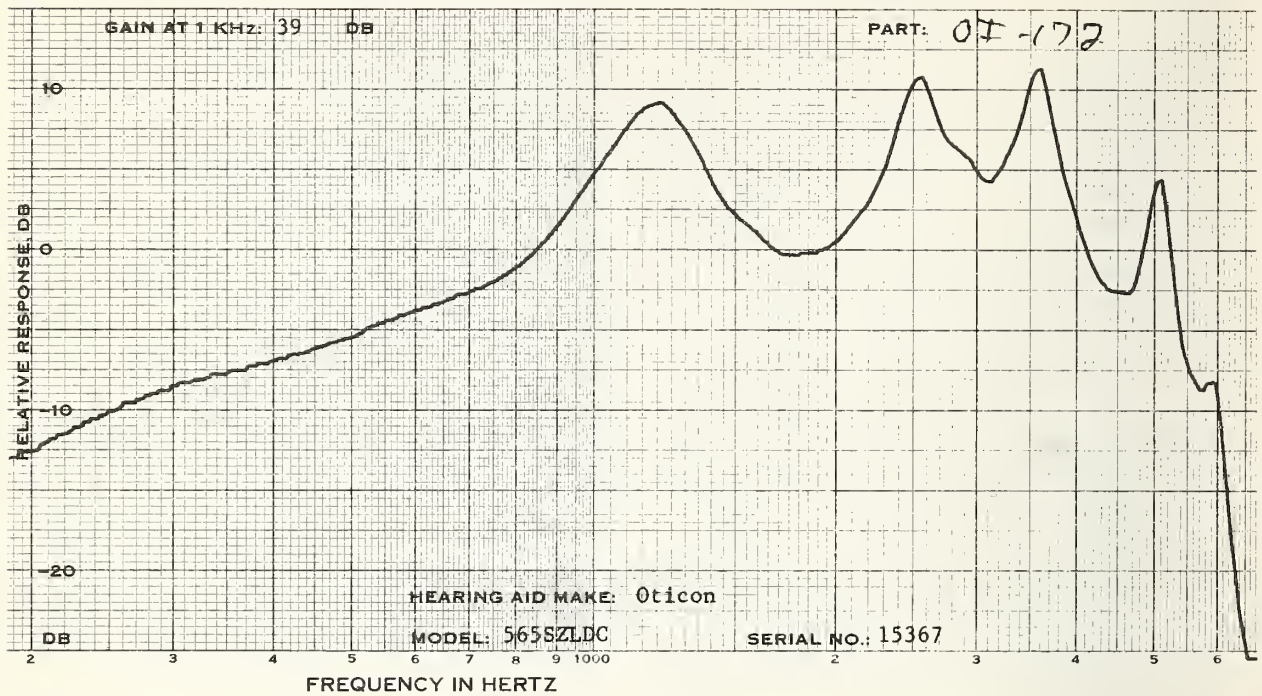
MEASUREMENTS WITH  
FULL VOL CONTROL

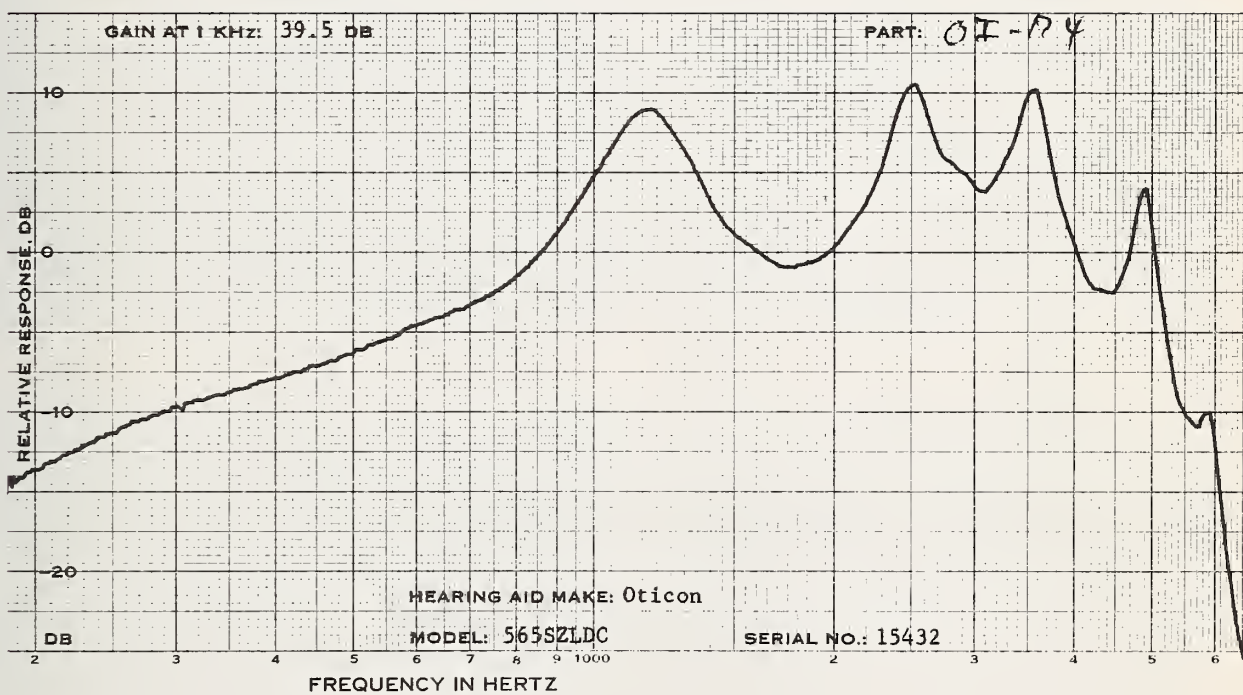
1KHZ GAIN DB	52.0	53.0	52.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	88.0	84.0	86.0
OUTPUT LEVEL DB	109.0	110.0	109.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	39.0	41.0	39.5
HARMONIC DIST			
2INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 1	3 1	3 1
700 HZ %	2 1	2 1	2 2
900 HZ %	1 1	1 1	1 1
MAX DIST %	3 2	3 1	5 2
FREQ OF MAX DIS	540 550	500 900	560 560
S/N RATIO DB			
1KHZ SIGNAL	41.0	43.0	41.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.9	1.7	1.9
65 DB INPUT	1.9	1.7	1.9
BATTERY VOLTAGE	1.38	1.38	1.38







OTICON DIR OE  
 MODEL:568S TONE:NONE TUBING:1'' BATTERY:675

CODE	OI-175	OI-176	OI-177
SERIAL #	10252	10263	10336
DATE		APR 11, 1974	

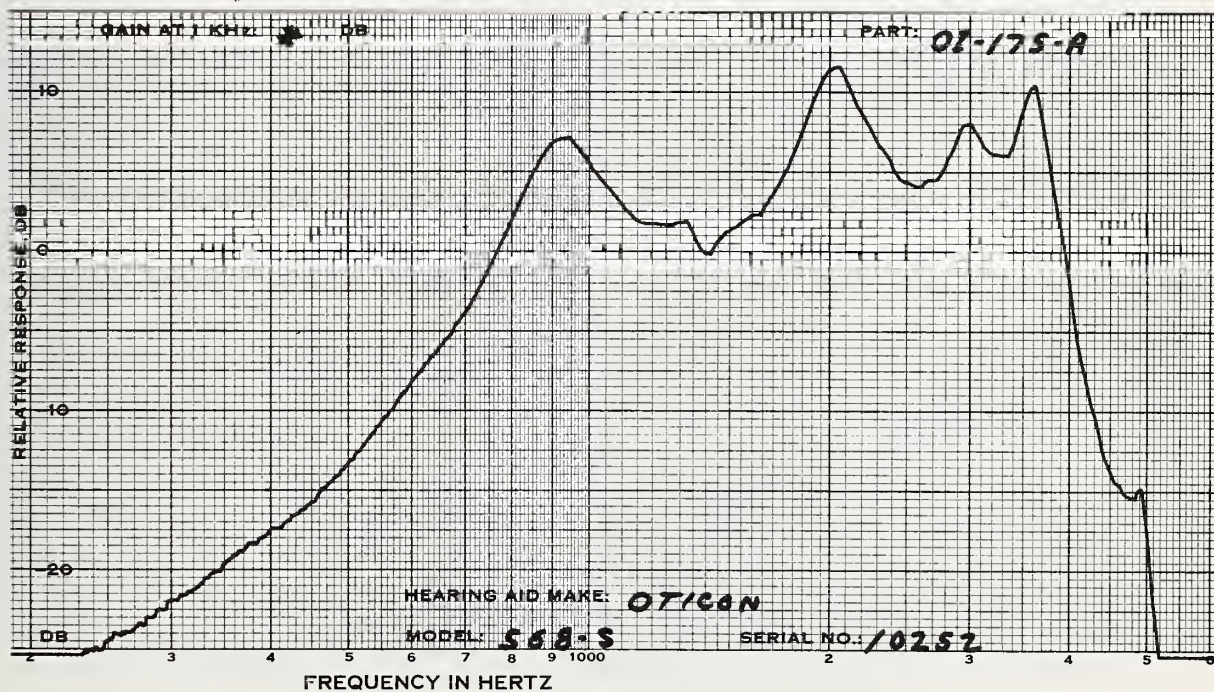
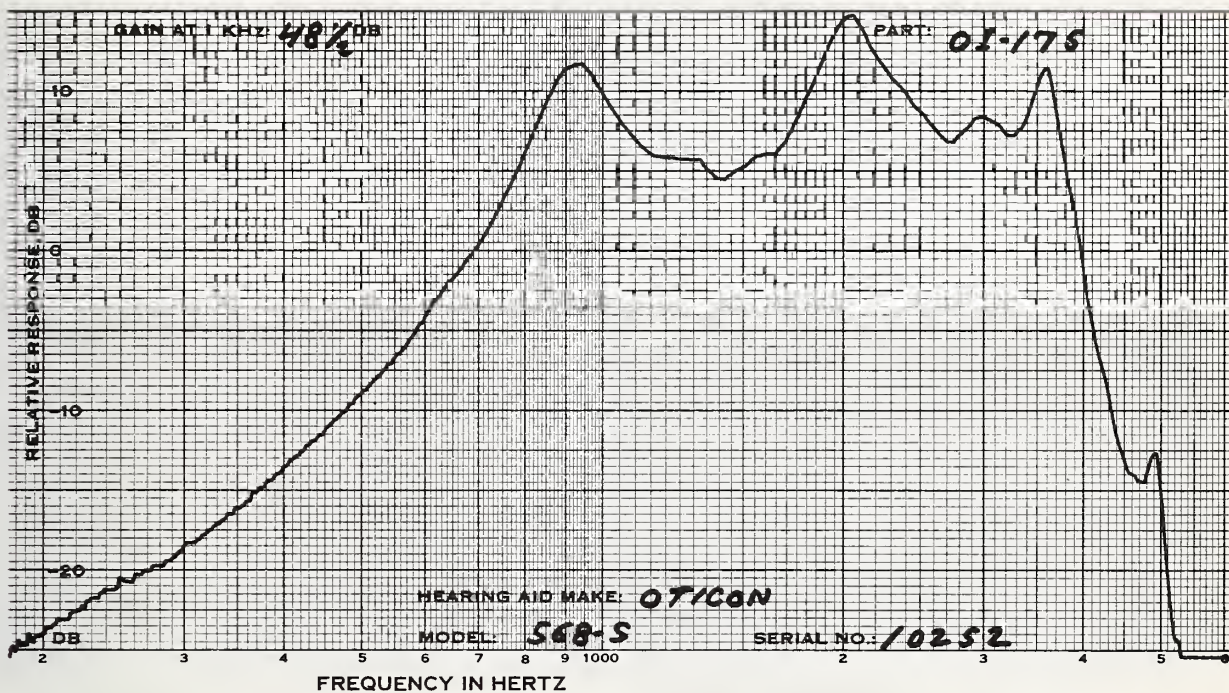
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	48.5	50.5	46.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.0	75.0	76.0
OUTPUT LEVEL DB	117.0	118.0	116.5

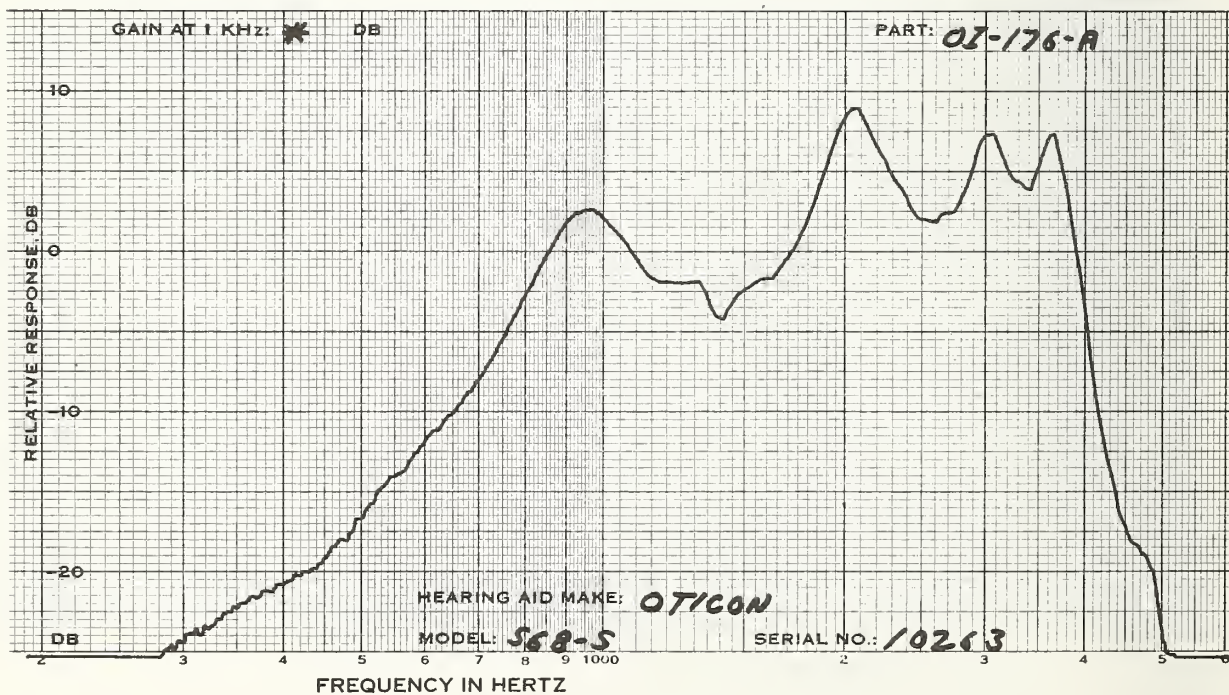
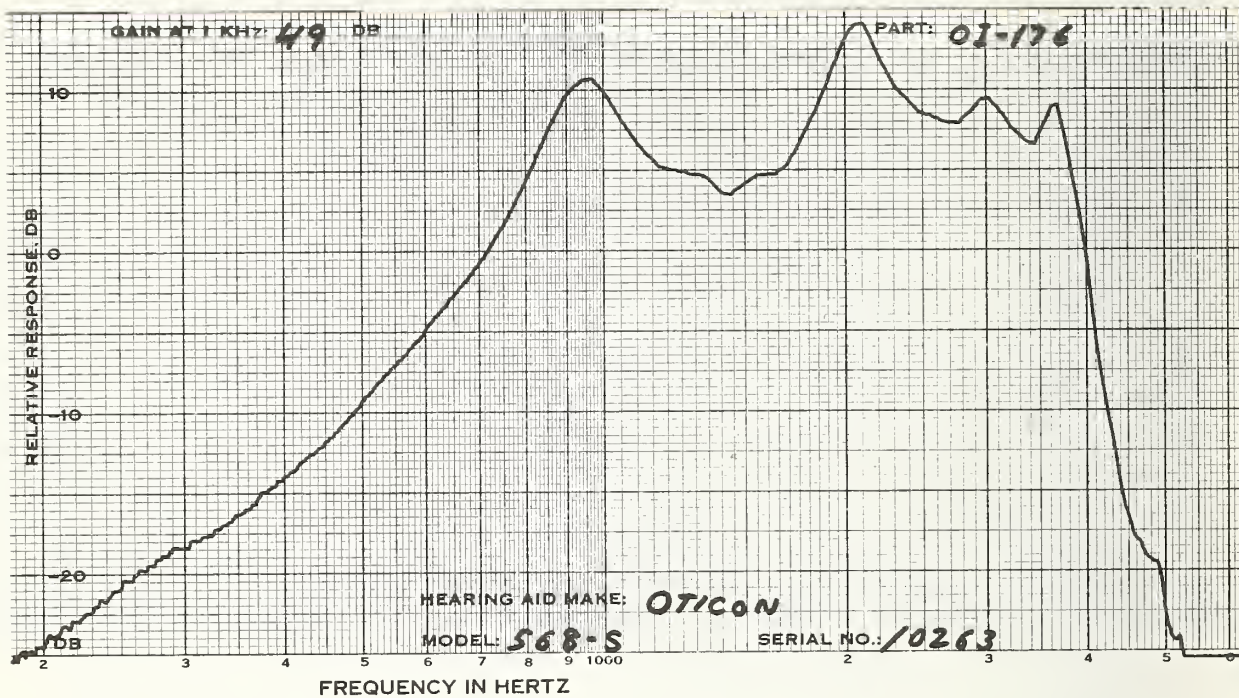
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

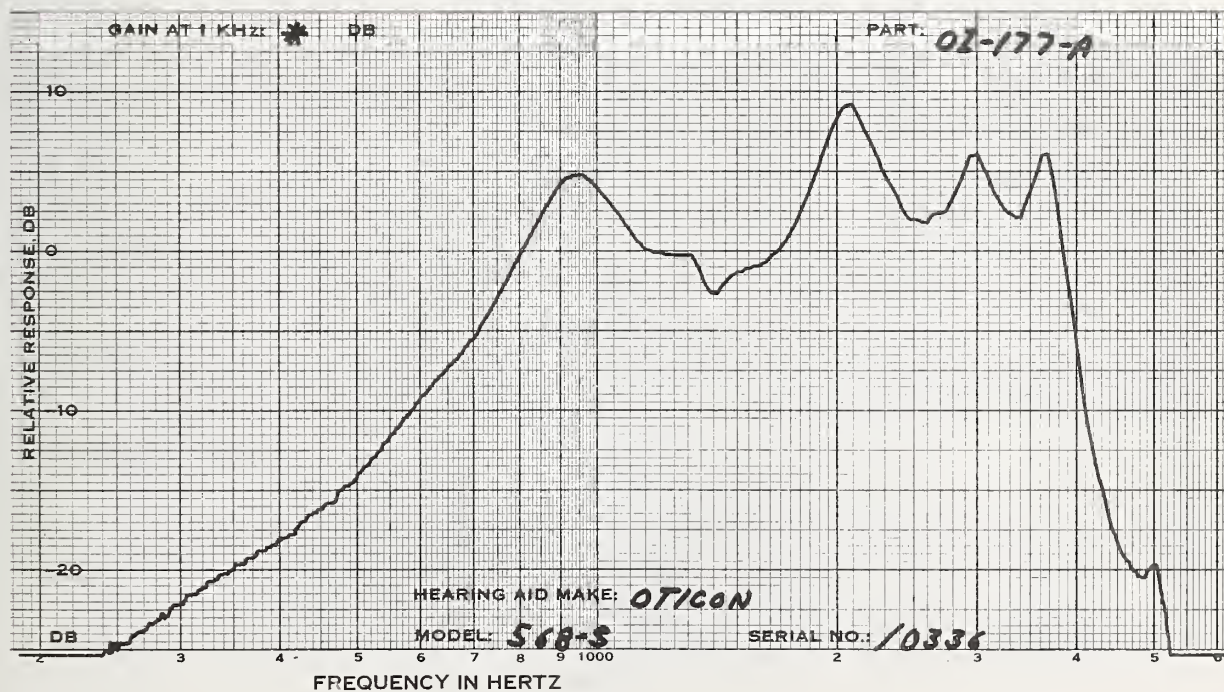
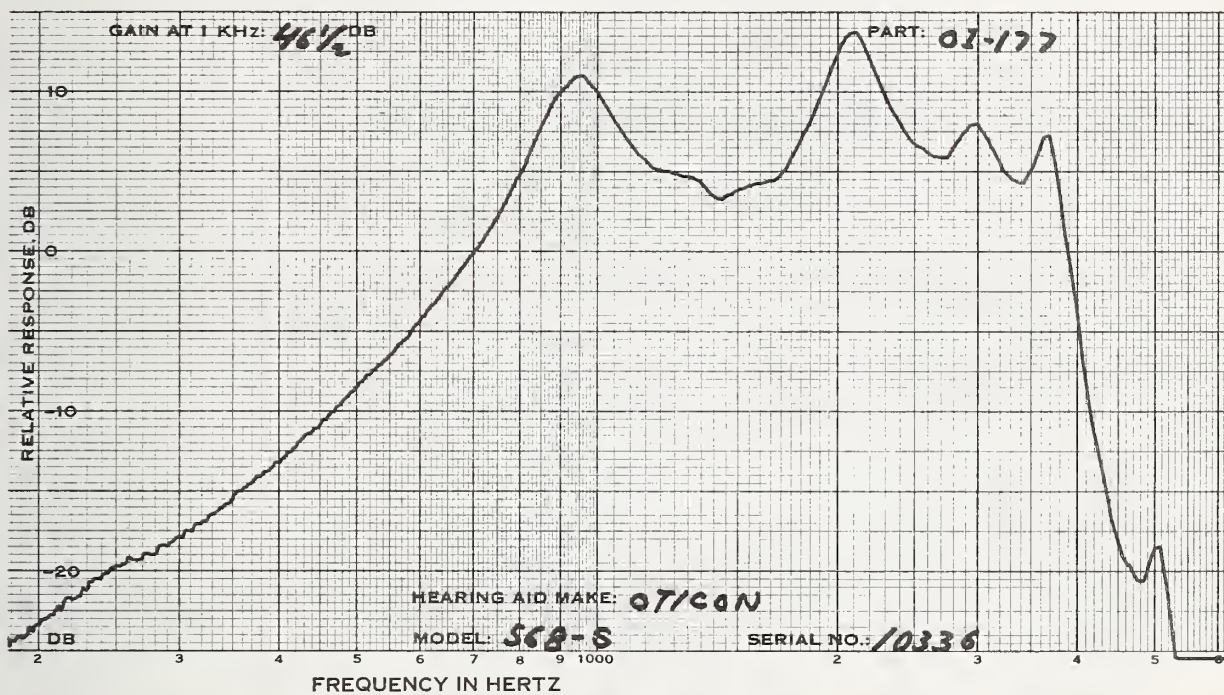
1KHZ GAIN DB	48.5(FULL)	49.0	46.5(FULL)
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.0 70.0	61.5 71.5
500 HZ %	2 2	7 6	7 5
700 HZ %	1 2	2 2	1 1
900 HZ %	8 13	2 2	1 1
MAX DIST %	8 13	7 7	7 5
FREQ OF MAX DIS	900 900	500 1530	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.0	45.0	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.4	1.4	1.4
65 DB INPUT	1.4	1.4	1.4
BATTERY VOLTAGE	1.39	1.38	1.39













OTICON  
 MODEL:380SI TONE:NONE RECEIVER:AFM8 BATTERY:502

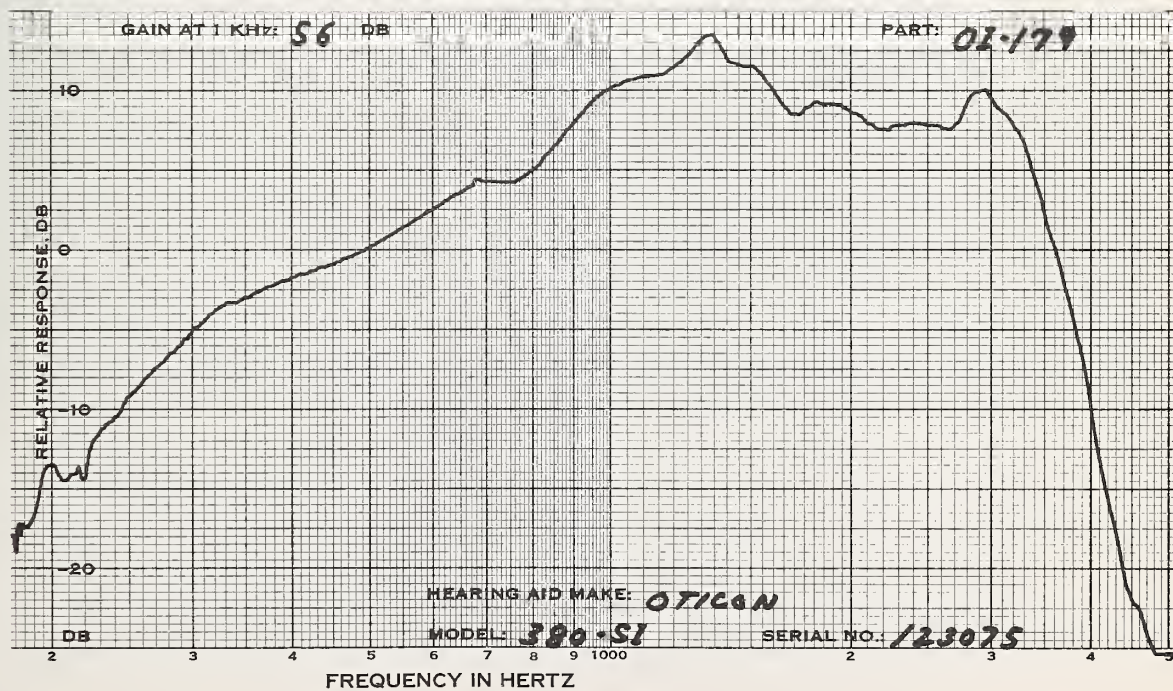
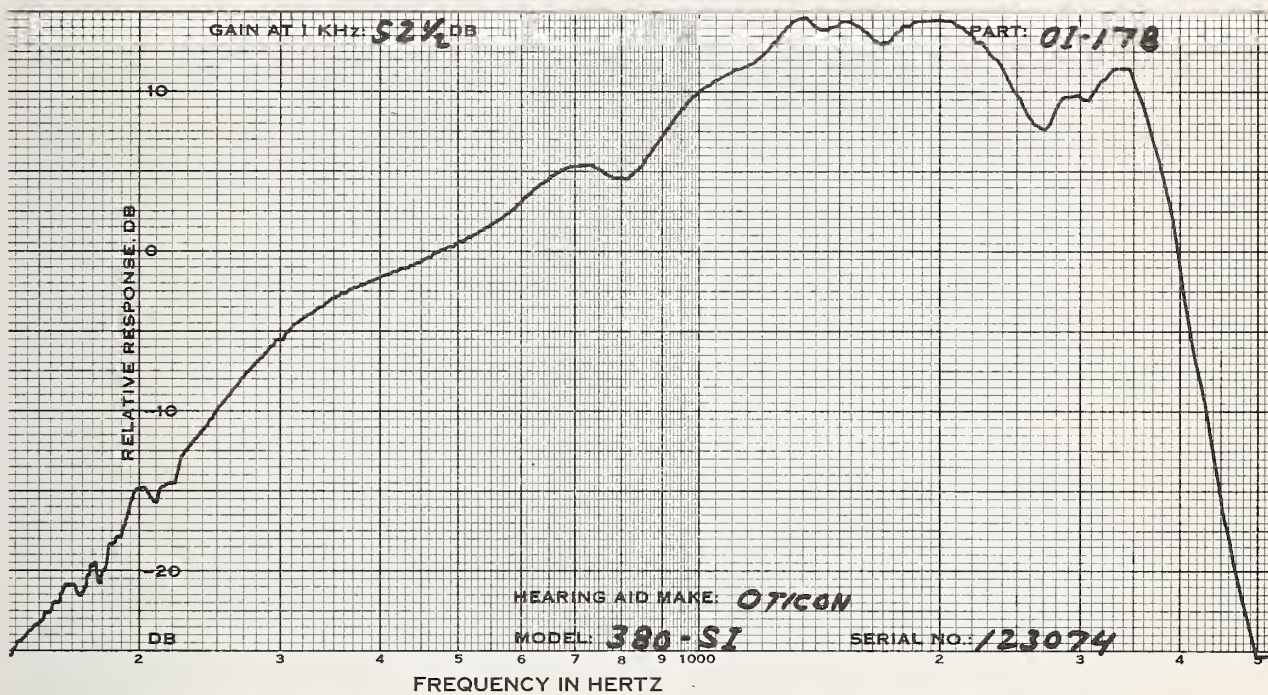
CODE	OI-178	OI-179	OI-180
SERIAL #	123074	123075	123567
DATE		APR 12, 1974	

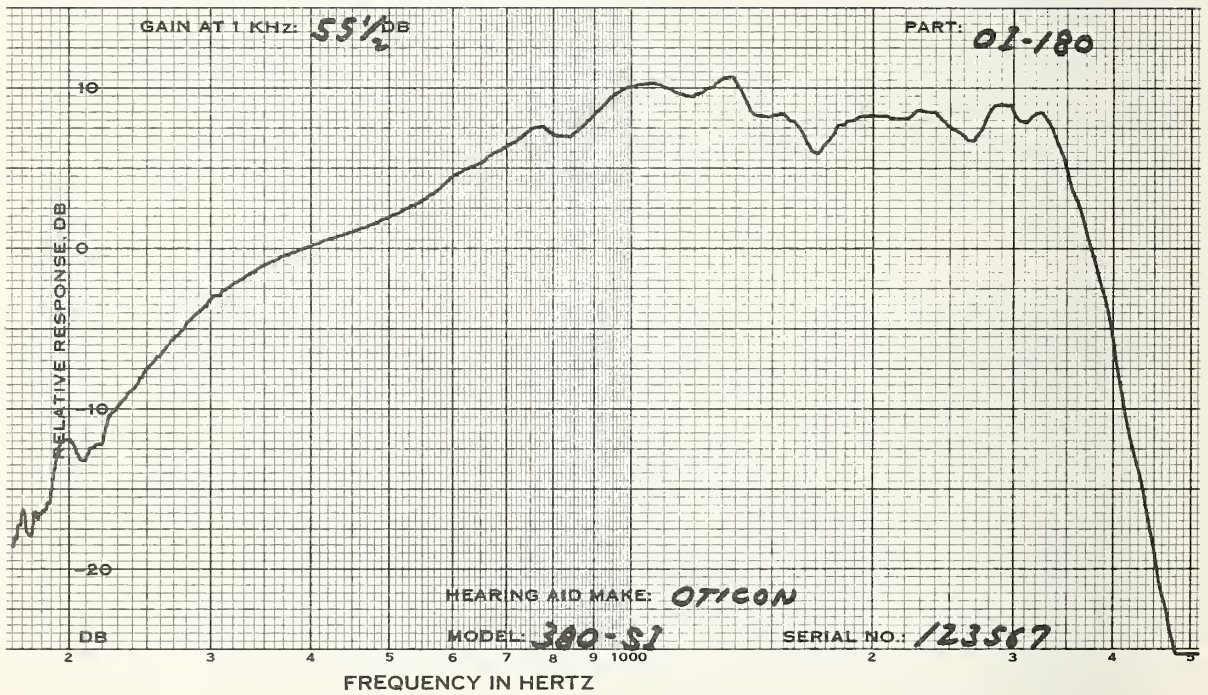
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	56.5	60.0	58.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.5	74.0	75.0
OUTPUT LEVEL DB	124.0	125.0	124.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	52.5	56.0	55.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 6	4 5	3 4
700 HZ %	3 8	2 5	1 4
900 HZ %	3 8	3 6	2 7
MAX DIST %	5 20	5 14	3 12
FREQ OF MAX DIS	560 1280	530 1300	520 1310
S/N RATIO DB			
1KHZ SIGNAL	49.0	51.0	49.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	5.8	6.1	6.0
65 DB INPUT	5.8	6.1	6.0
BATTERY VOLTAGE	1.47	1.47	1.47







OTICON  
 MODEL:850 SUPER CROS TONE:N TUBING:1 BATTERY:RM13

CROS EG

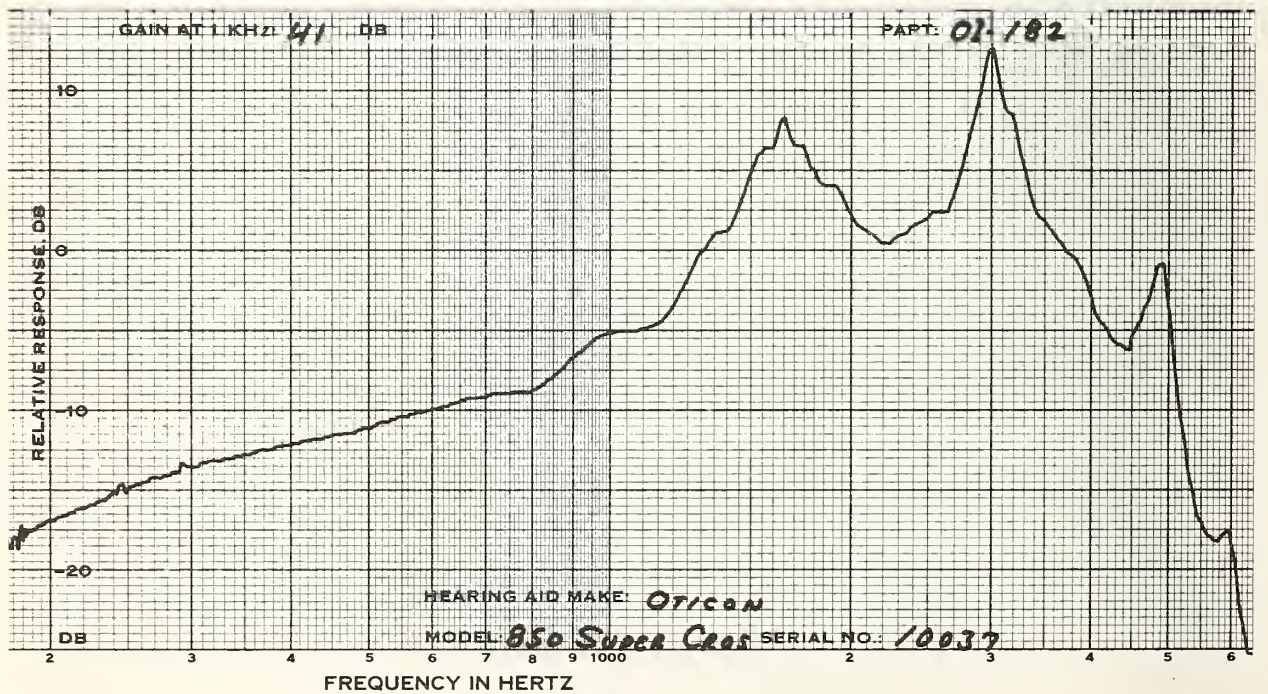
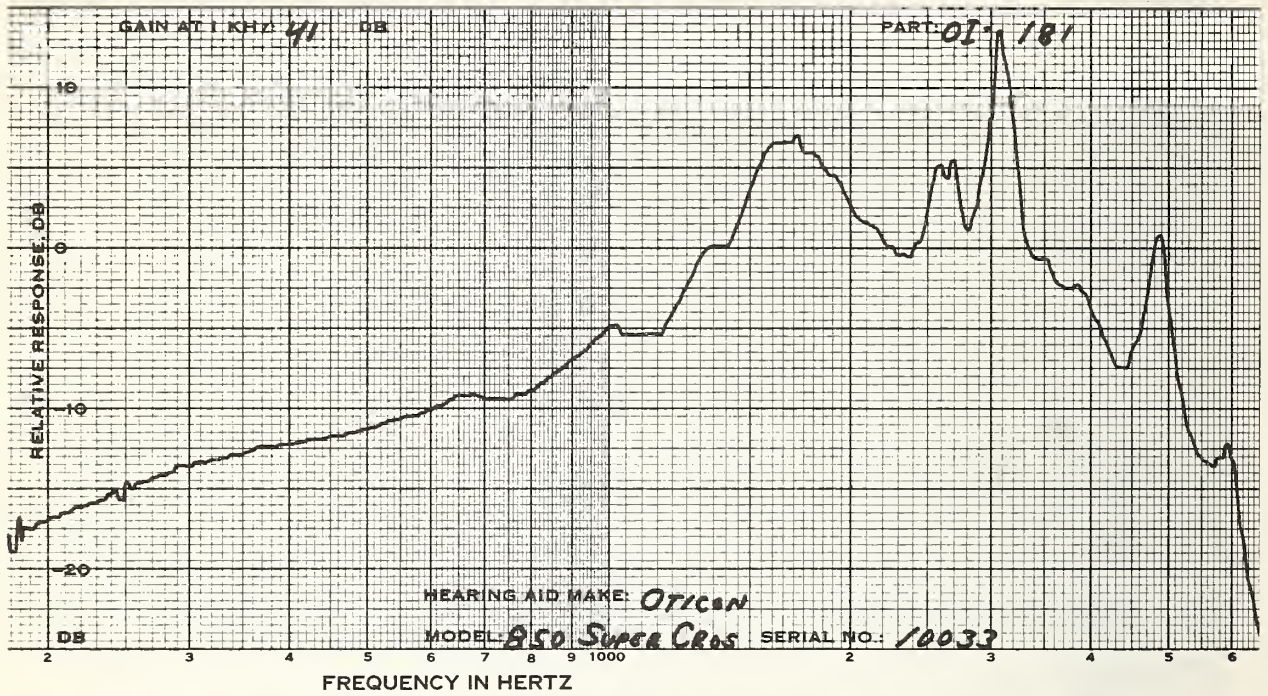
CODE	OI-181	OI-182	OI-183
SERIAL #	10033	10037	10040
DATE		MAY 9, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

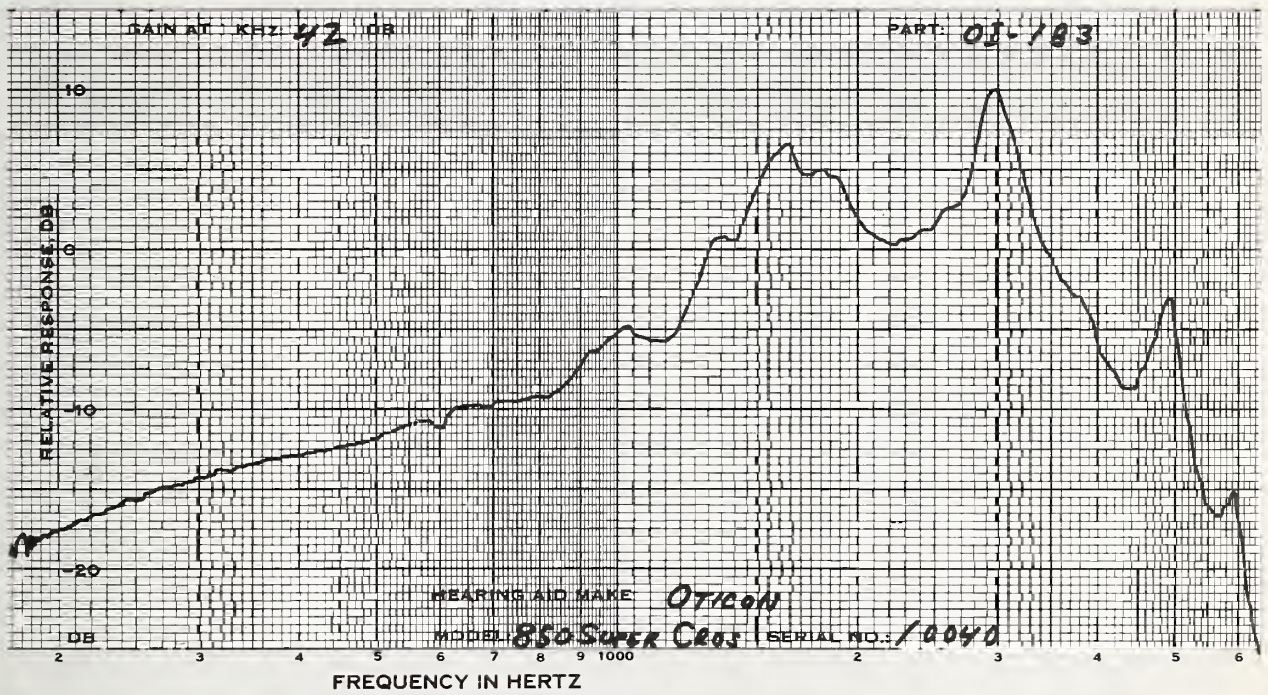
1KHZ GAIN DB	42.0	43.5	42.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.5	75.0	77.5
OUTPUT LEVEL DB	118.0	118.5	118.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	41.0	41.0	42.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 5	4 5	4 8
700 HZ %	3 2	2 3	2 5
900 HZ %	4 4	3 2	3 9
MAX DIST %	5 26	4 33	4 33
FREQ OF MAX DIS	880 2390	500 2380	880 2410
S/N RATIO DB			
1KHZ SIGNAL	35.0	36.5	35.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.9	1.7	2.0
65 DB INPUT	1.9	1.7	2.0
BATTERY VOLTAGE	1.32	1.31	1.32









QUALITONE  
 MODEL:CS TONE:N TUBING:1 3/8 BATTERY:S76 SPEC OE

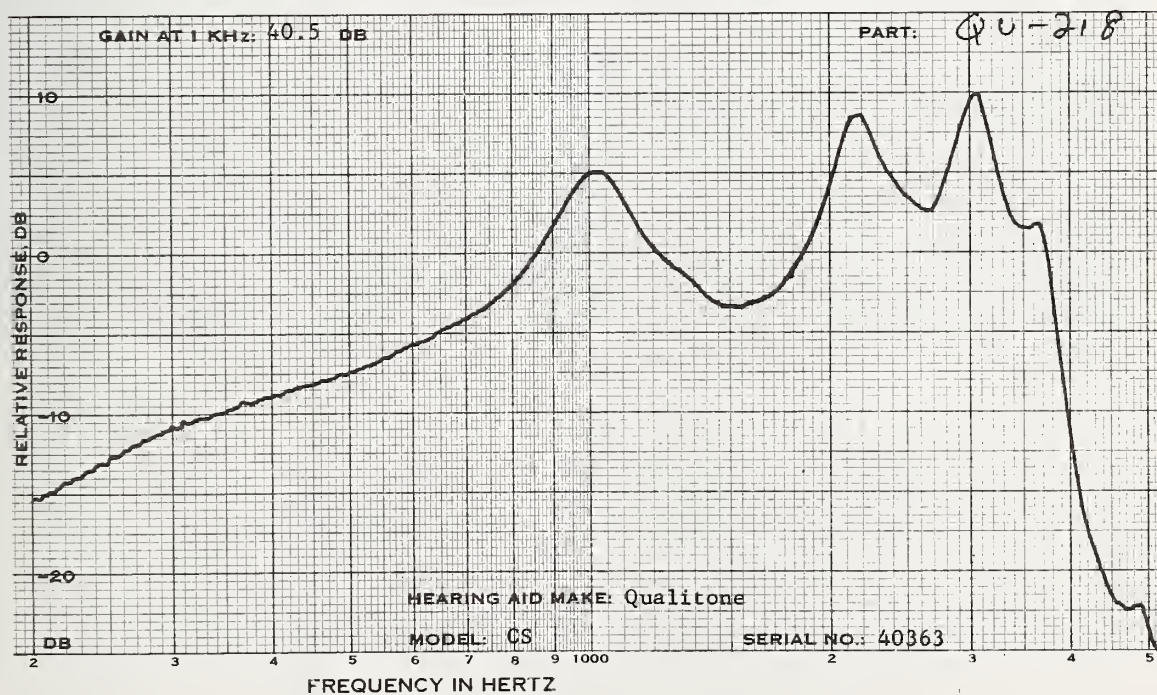
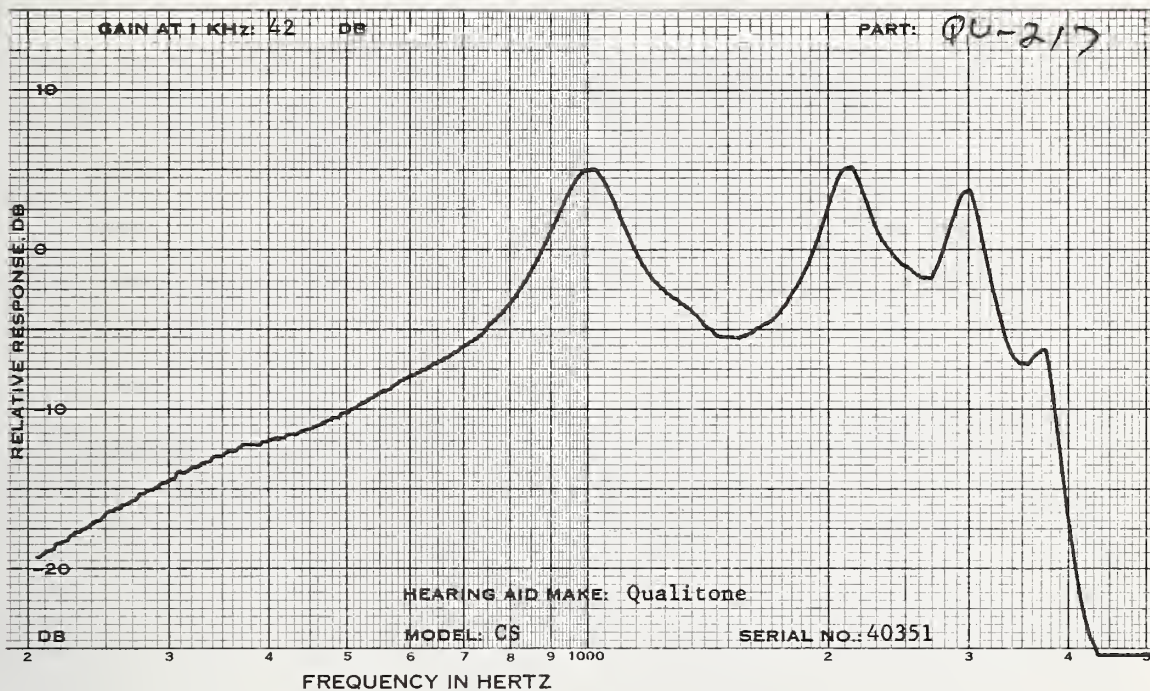
CODE	QU-217	QU-218	QU-219
SERIAL #	40351	40363	40354
DATE		MAR 21, 1974	

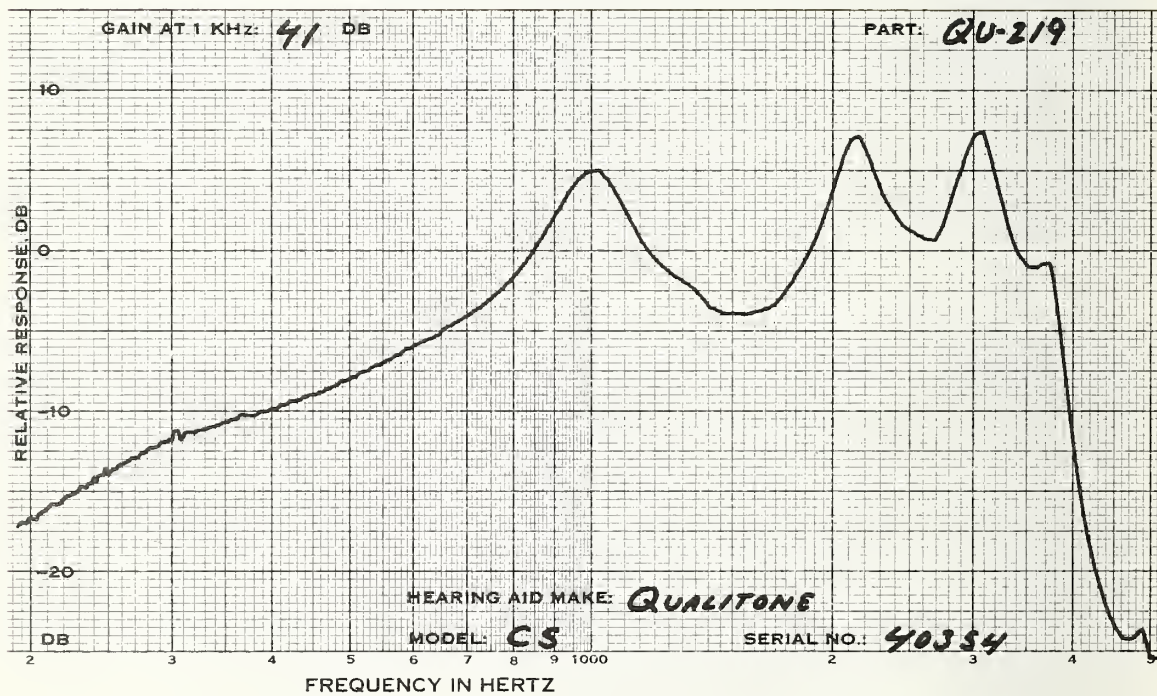
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	46.0	45.5	48.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	84.0	86.5	84.0
OUTPUT LEVEL DB	107.5	107.5	108.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	42.0	40.5	41.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 2	4 2	4 2
700 HZ %	2 2	1 1	1 1
900 HZ %	1 1	1 1	1 1
MAX DIST %	5 2	4 2	4 2
FREQ OF MAX DIS	500 700	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.0	43.5	44.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.5	.6	.5
65 DB INPUT	.5	.6	.5
BATTERY VOLTAGE	1.59	1.59	1.58







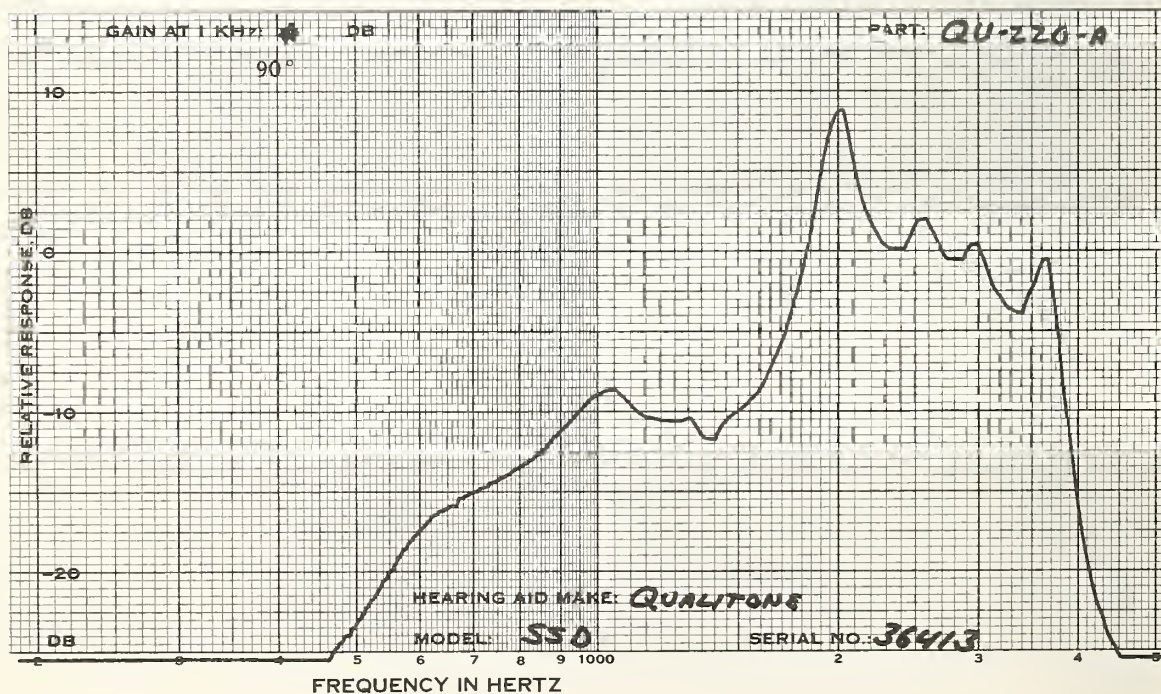
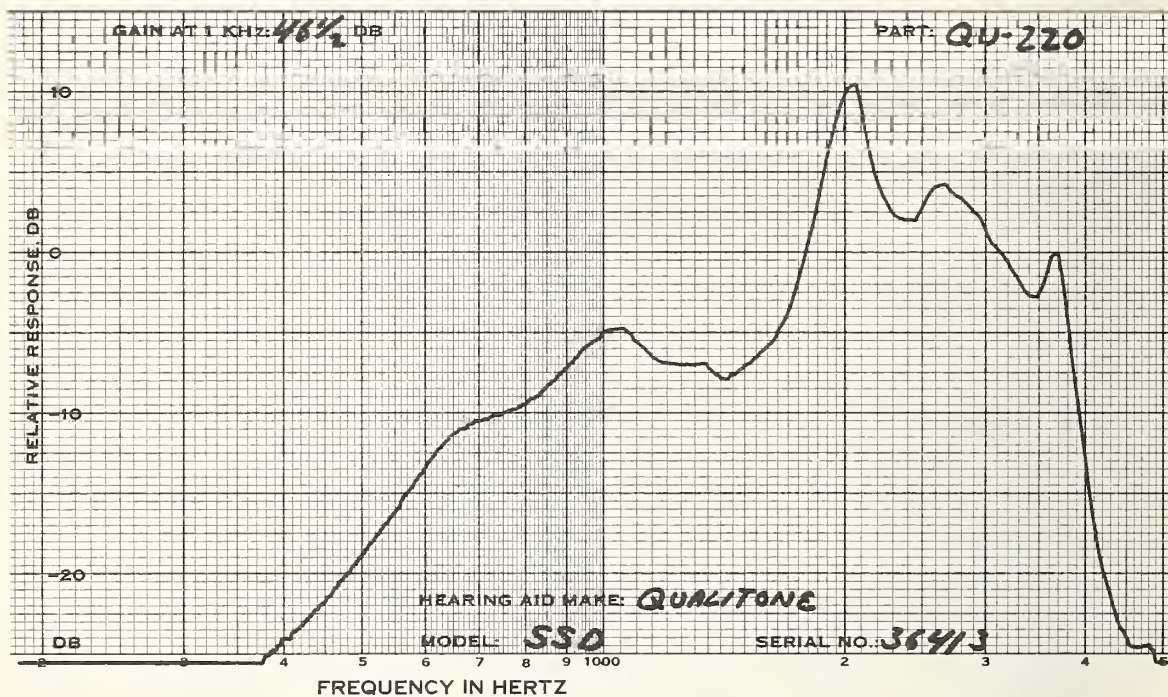
QUALITONE			DIREC OE
MODEL:SSD	TONE:N	TUBING:1 3/8	BATTERY:S76
CODE	QU-220	QU-221	QU-222
SERIAL #	36413	36695	36699
DATE		MAR 26, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

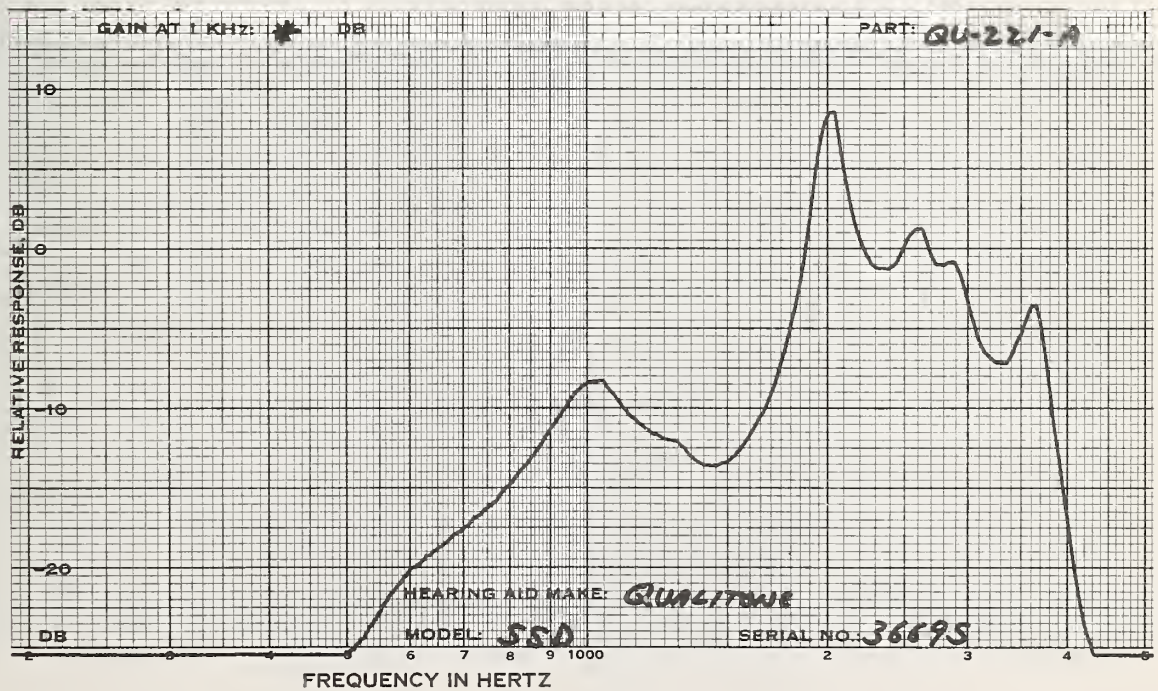
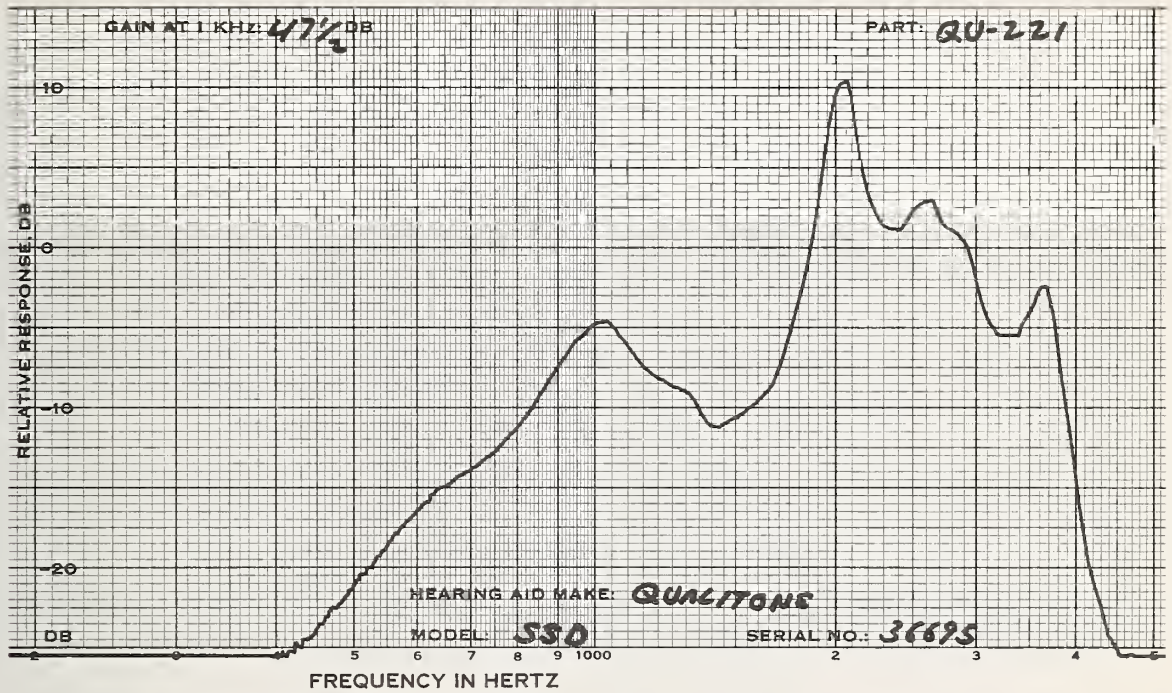
1KHZ GAIN DB	47.0	51.0	51.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	80.0	79.0	76.5
OUTPUT LEVEL DB	121.0	121.5	121.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

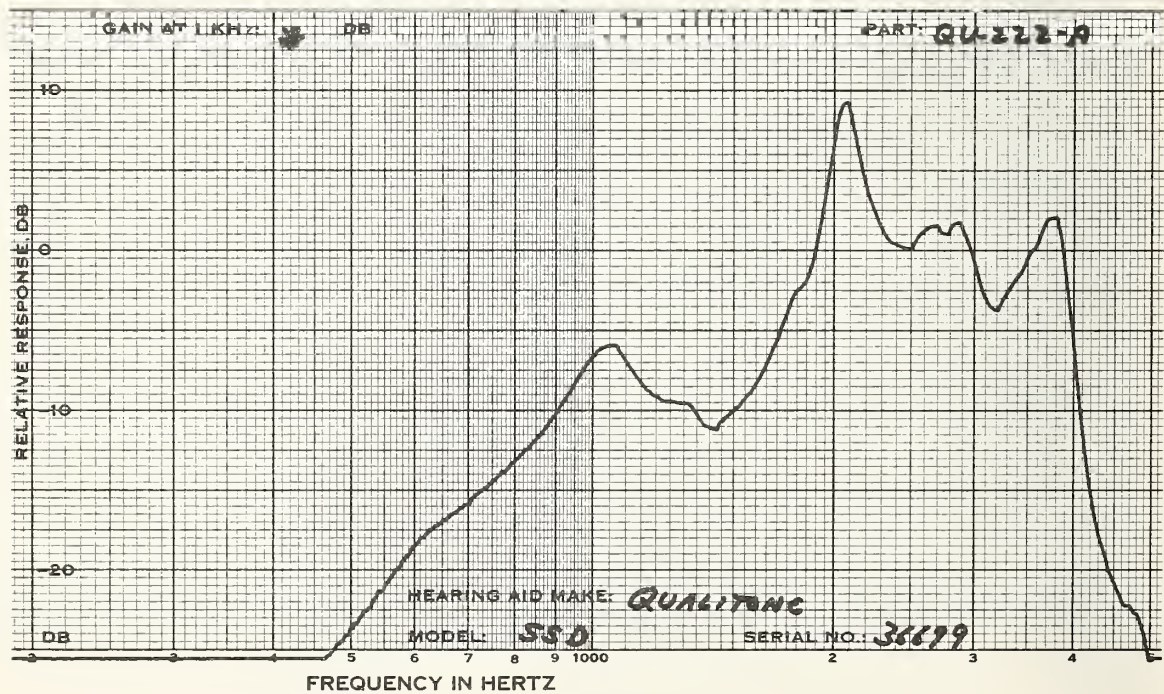
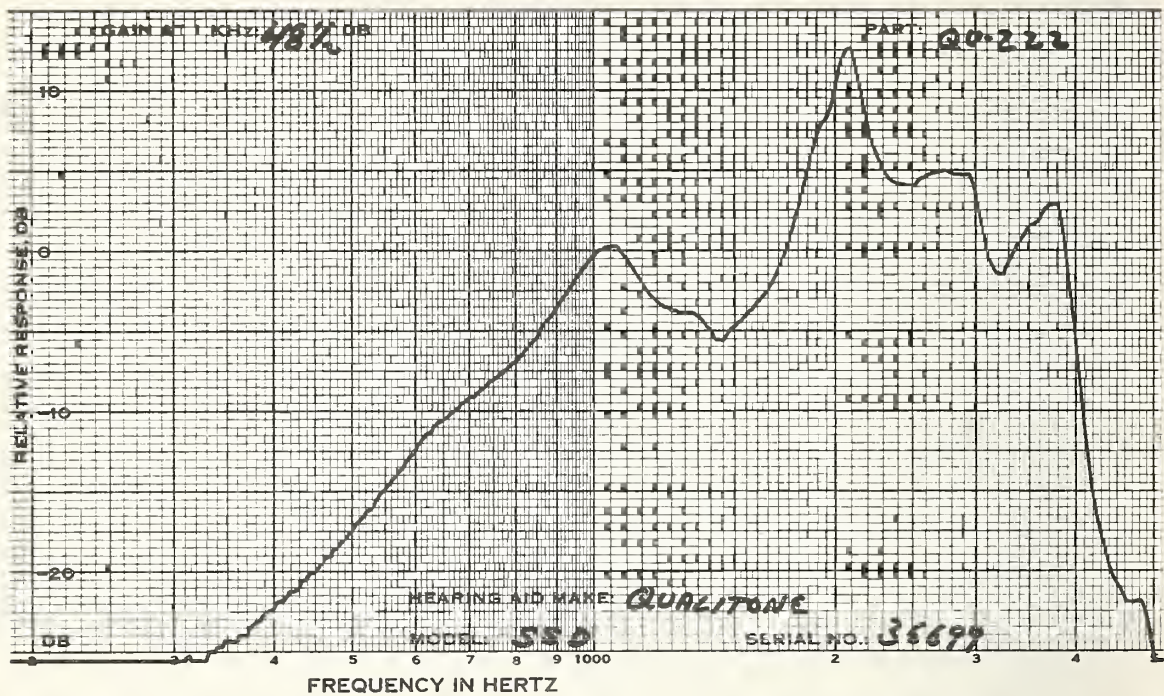
1KHZ GAIN DB	46.5	47.5	48.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 2	14 4	6 2
700 HZ %	2 2	4 3	3 2
900 HZ %	2 1	1 1	1 1
MAX DIST %	6 31	20 23	6 31
FREQ OF MAX DIS	1000 1810	670 1830	500 1820
S/N RATIO DB			
1KHZ SIGNAL	39.5	40.0	43.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.2	2.1	2.2
65 DB INPUT	2.2	2.1	2.2
BATTERY VOLTAGE	1.57	1.56	1.57











QUALITONE  
MODEL: SNEC TONE: N TUBING: 1 1/2 BATTERY: S76

CROS EG

CODE	QU-223	QU-224	QU-225
SERIAL #	8112	8136	8141
DATE		MAY 8, 1974	

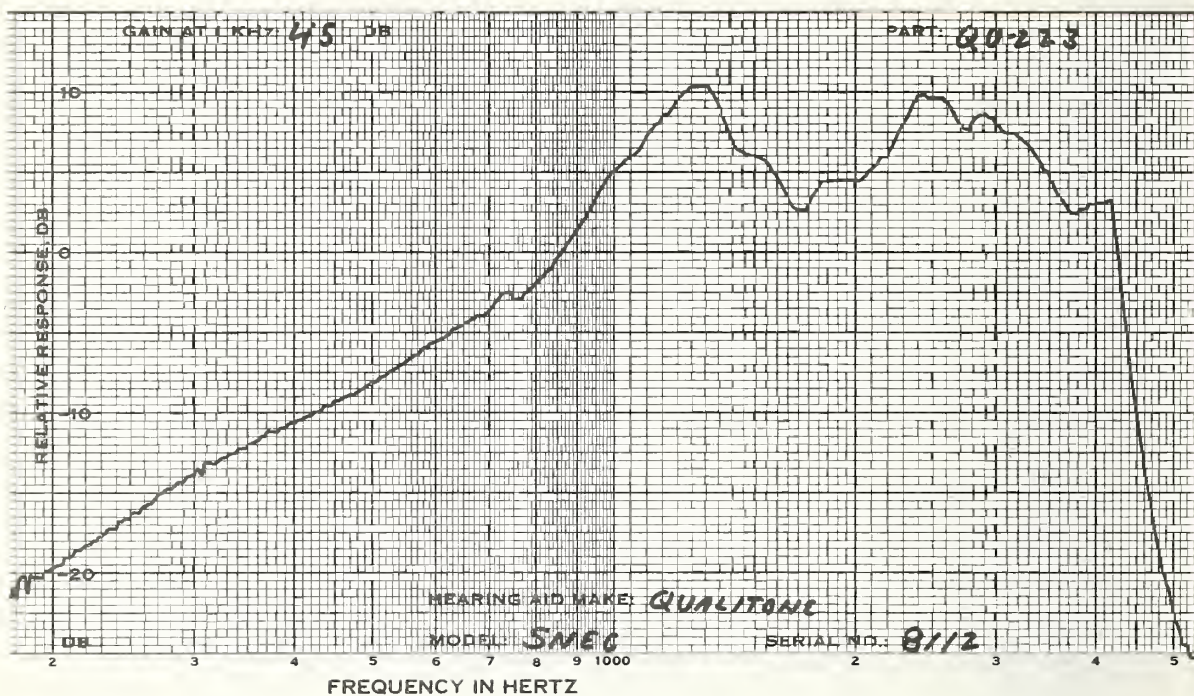
MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	45.0	48.0	46.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.0	76.0	76.5
OUTPUT LEVEL DB	117.5	119.0	119.0

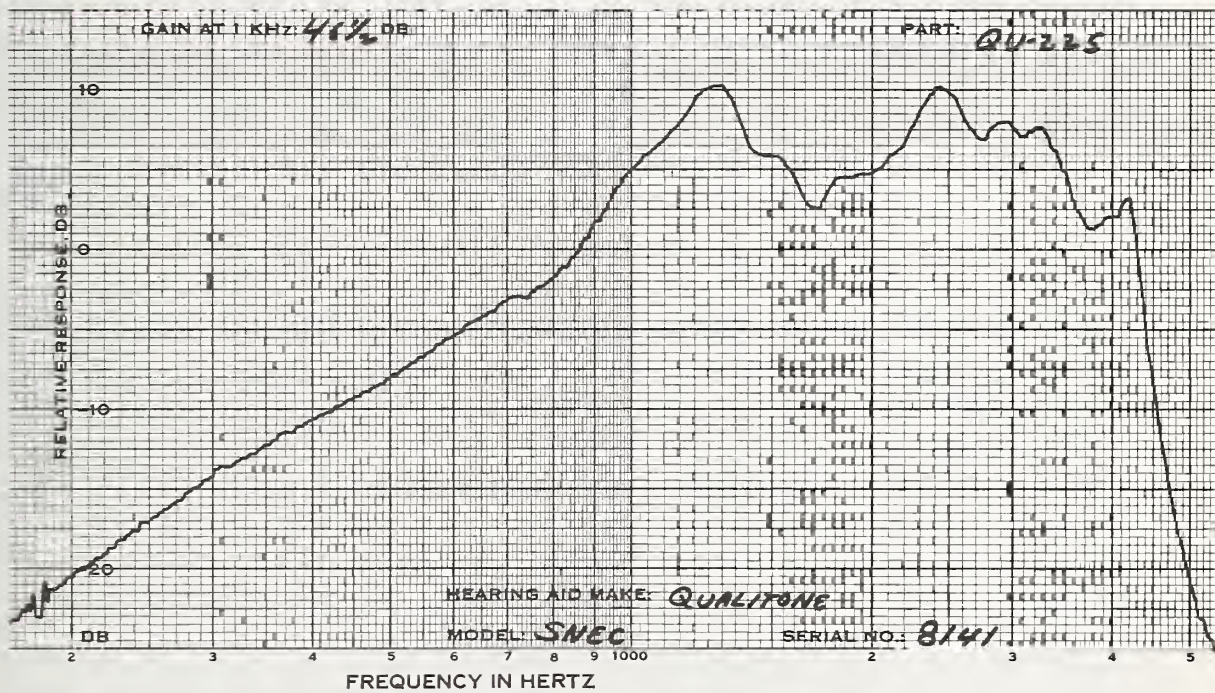
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	45.0(FULL)		48.0(FULL)		46.5(FULL)	
HARMONIC DIST						
@INPUT LEVEL DB	62.0	72.0	61.0	71.0	62.0	72.0
500 HZ %	4	2	5	4	5	4
700 HZ %	3	2	2	2	3	3
900 HZ %	1	1	1	0	1	1
MAX DIST %	5	3	5	6	6	6
FREQ OF MAX DIS	570	570	570	570	560	560
S/N RATIO DB						
1KHZ SIGNAL	40.5		51.5		40.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.3		2.3		2.3	
65 DB INPUT	2.3		2.3		2.3	
BATTERY VOLTAGE	1.57		1.57		1.57	









QUALITONE  
 MODEL:SWH TONE:NGNE TUBING:1 3/4 BATTERY:S76 DE

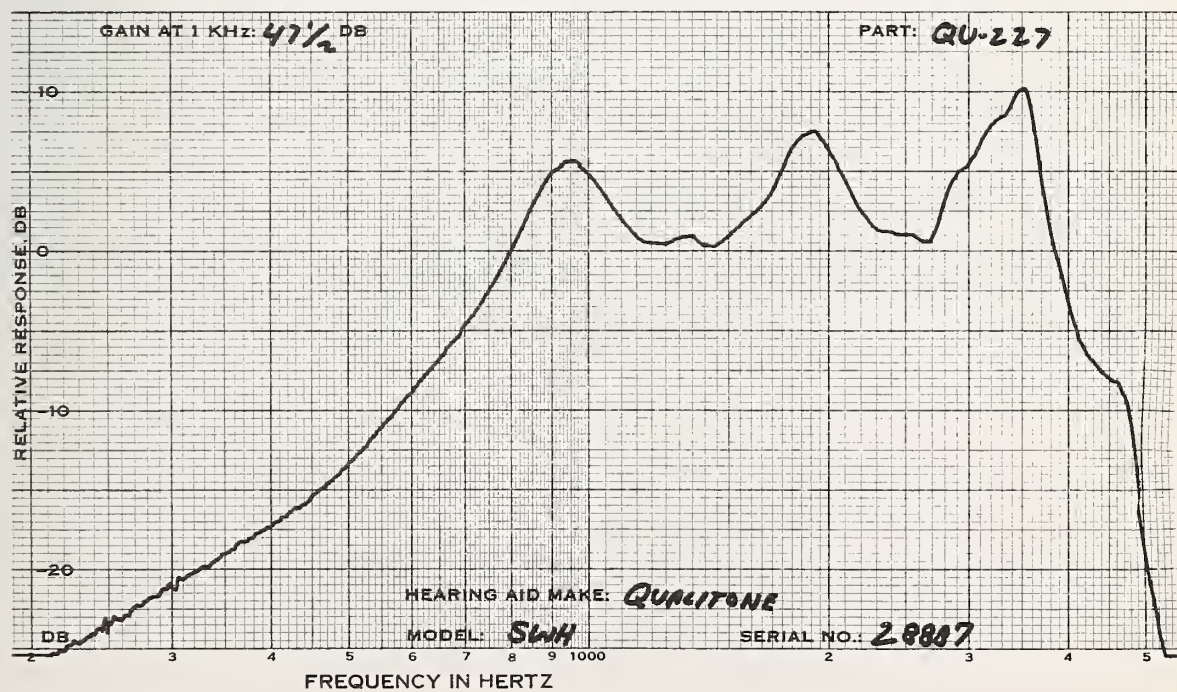
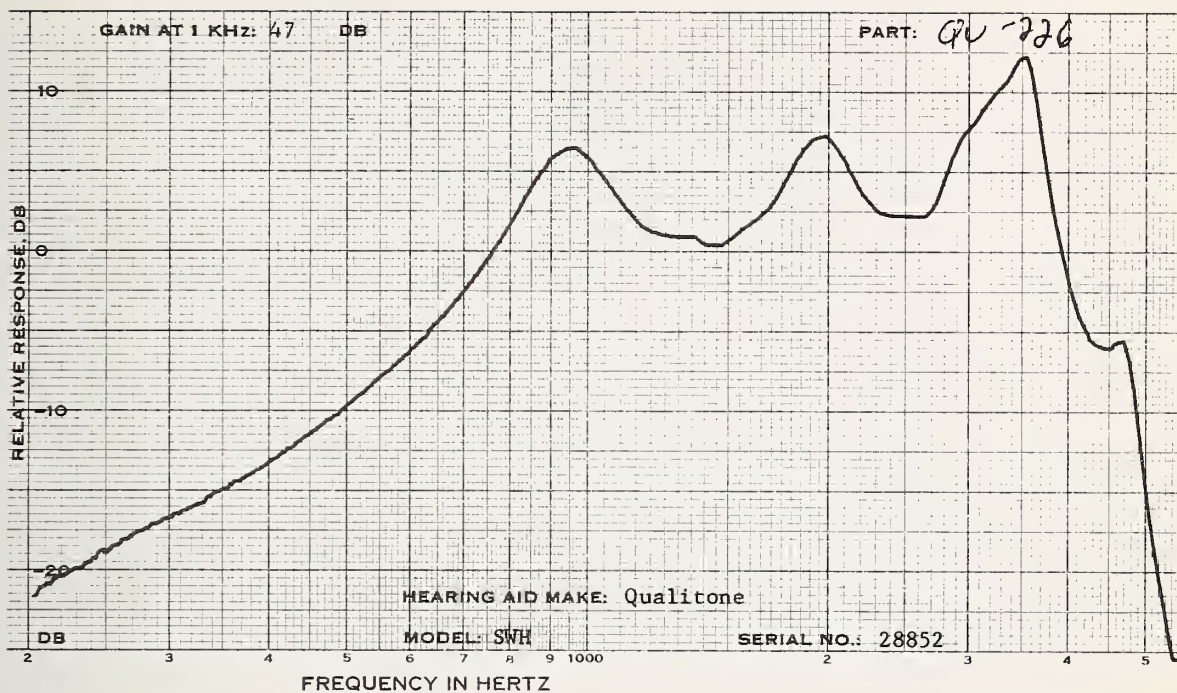
CODE	QU-226	QU-227	QU-228
SERIAL #	28852	28887	28905
DATE		MAR 21, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

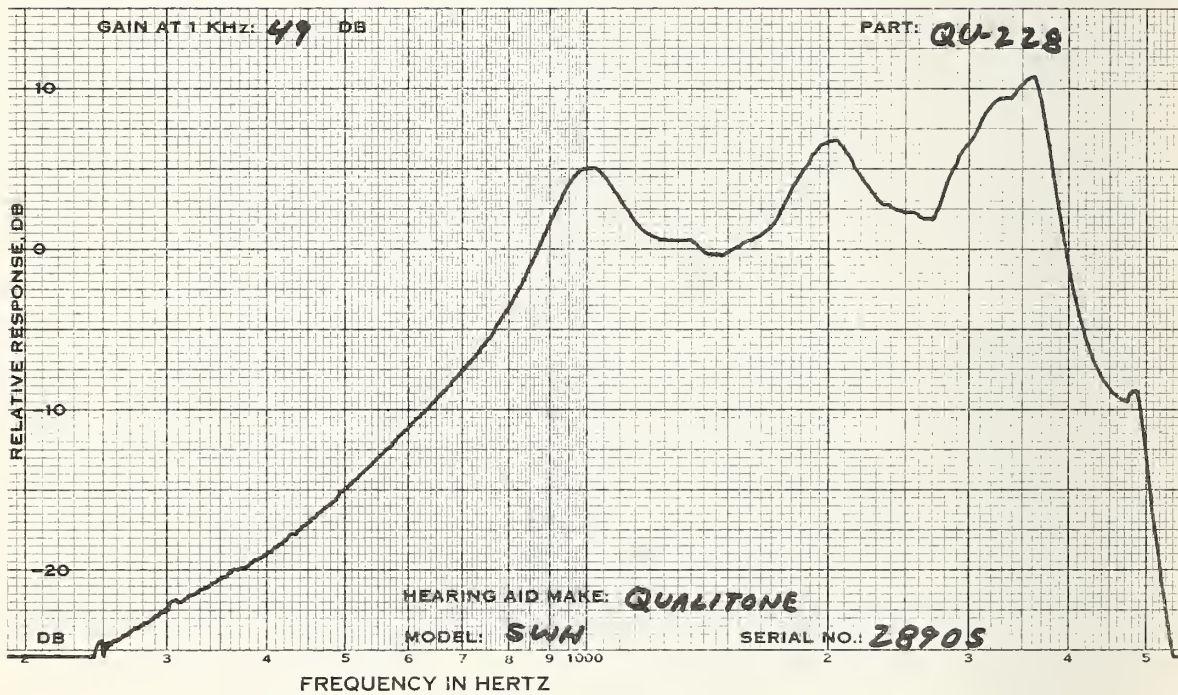
1KHZ GAIN DB	47.0	47.5	49.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	86.0	76.0	76.0
OUTPUT LEVEL DB	119.5	117.0	118.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	47.0(FULL)	47.5(FULL)	49.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	63.5 73.5	63.0 73.0	60.0 70.0
500 HZ %	5 5	5 2	9 3
700 HZ %	1 1	1 1	2 1
900 HZ %	1 1	1 1	1 1
MAX DIST %	5 14	5 21	9 7
FREQ OF MAX DIS	500 1570	500 1540	500 1570
S/N RATIO DB			
1KHZ SIGNAL	44.0	42.5	45.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.0	1.1	1.3
65 DB INPUT	2.0	1.1	1.3
BATTERY VOLTAGE	1.57	1.58	1.57







QUALITONE  
 MODEL:TSP TONE:NONE TUBING:1 3/4 BATTERY:S76

OE

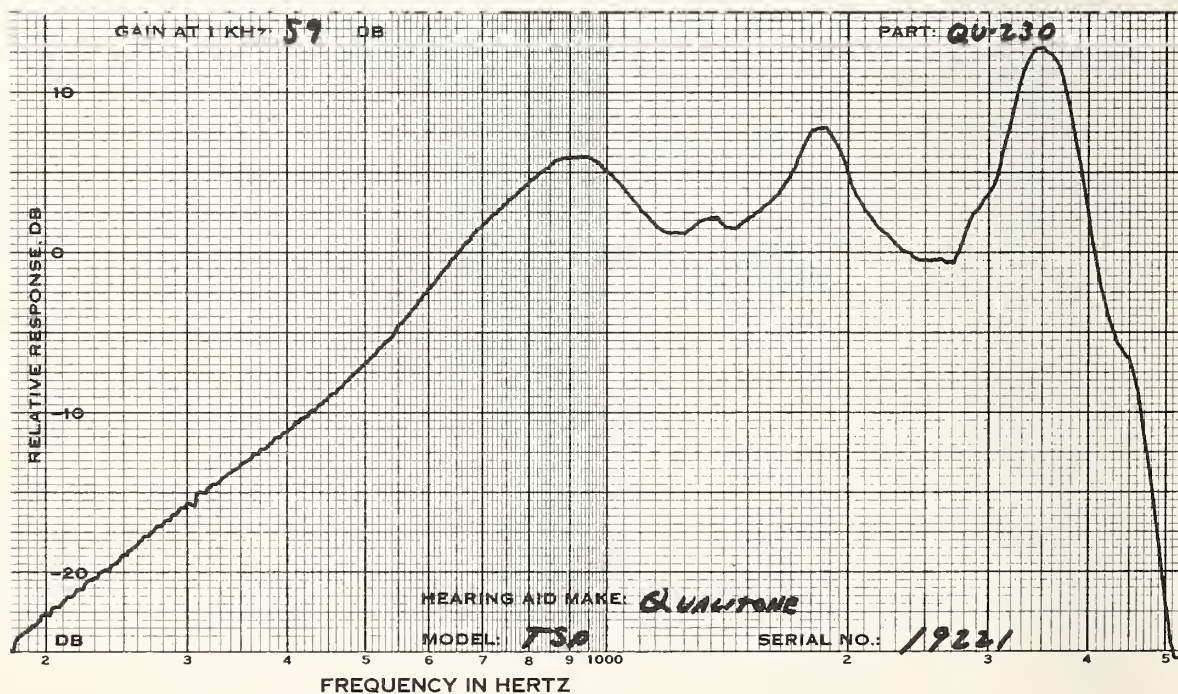
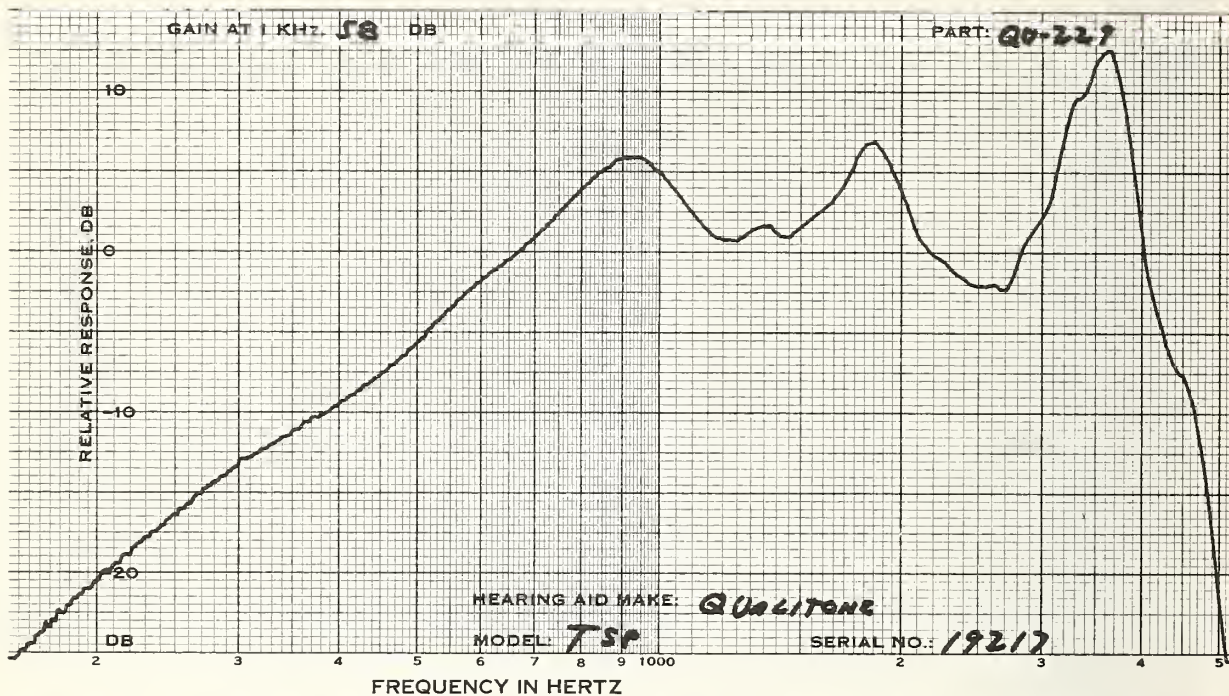
CODE	QU-229	QU-230	QU-231
SERIAL #	19217	19221	19227
DATE		MAR 21, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

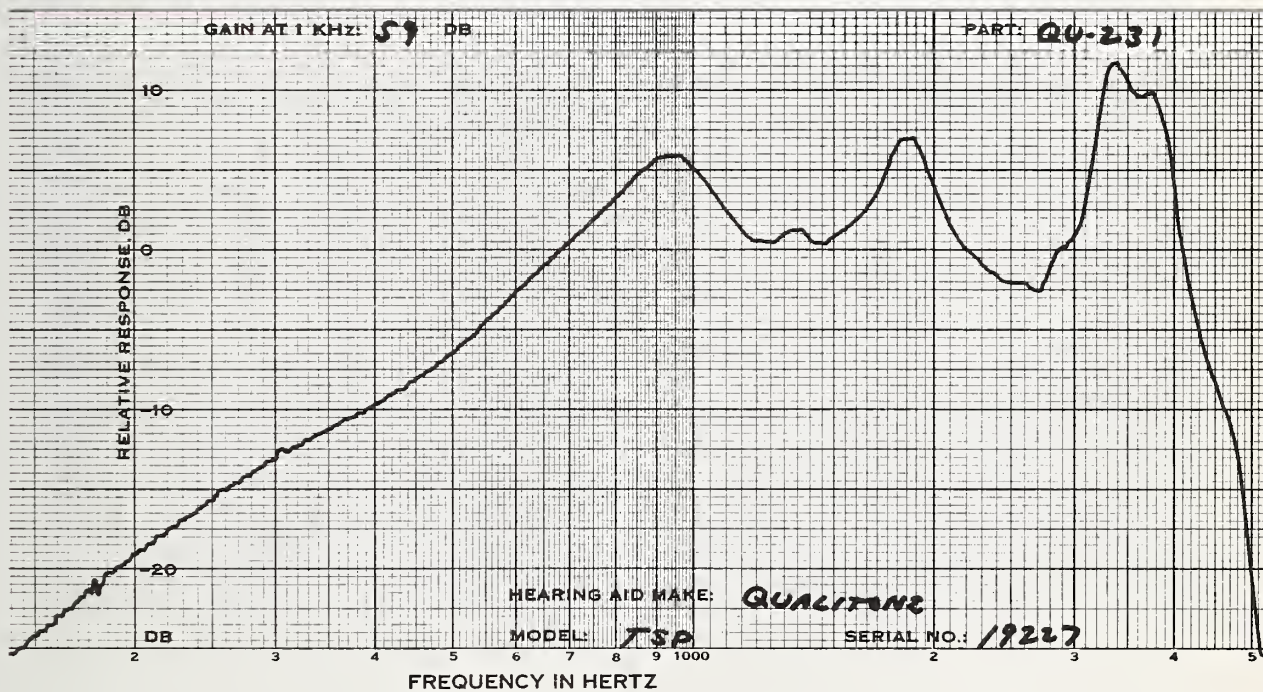
1KHZ GAIN DB	58.0	59.0	59.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.0	78.0	78.0
OUTPUT LEVEL DB	129.0	129.0	129.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	58.0(FULL)	59.0(FULL)	59.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 2	4 5	4 3
700 HZ %	0 1	1 3	1 2
900 HZ %	1 1	3 4	2 3
MAX DIST %	3 7	5 9	4 7
FREQ OF MAX DIS	500 1780	1760 1740	500 1790
S/N RATIO DB			
1KHZ SIGNAL	45.0	43.5	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.2	1.5	2.1
65 DB INPUT	3.8	3.5	4.3
BATTERY VOLTAGE	1.57	1.58	1.57







QUALITONE  
 MODEL:TSPN TONE:N PWR SC:IN TUBING:1 1/2 BATTERY:S76

EG

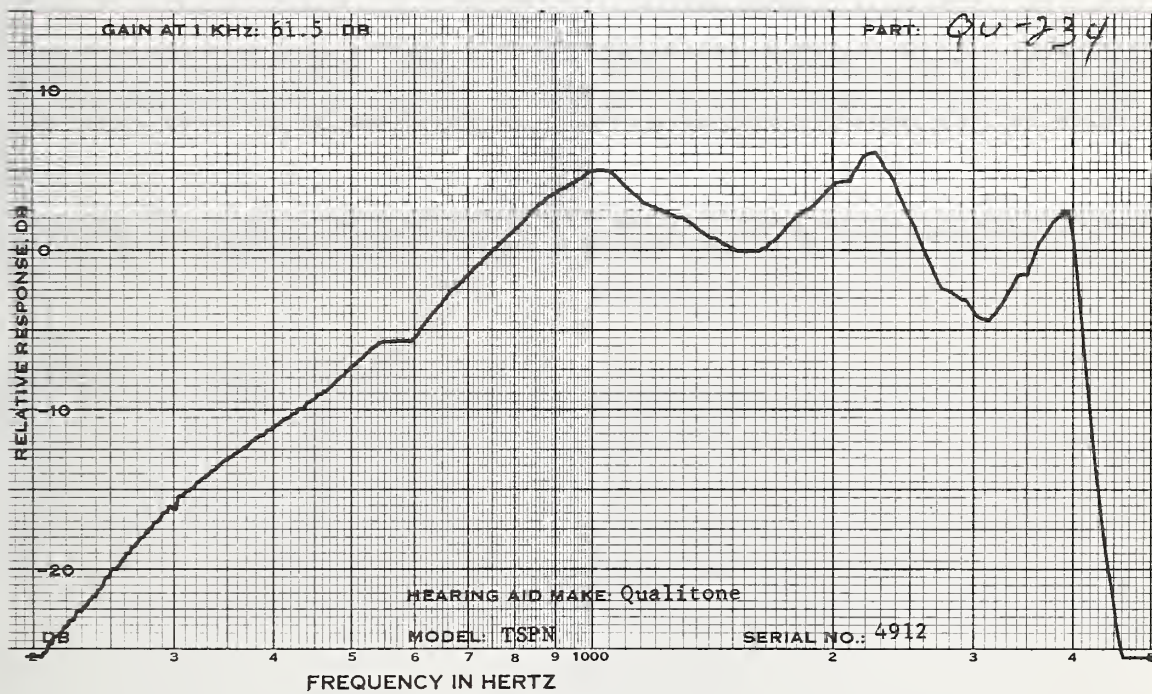
CODE	QU-232	QU-233	QU-234
SERIAL #	4708	4894	4912
DATE		MAR 22, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

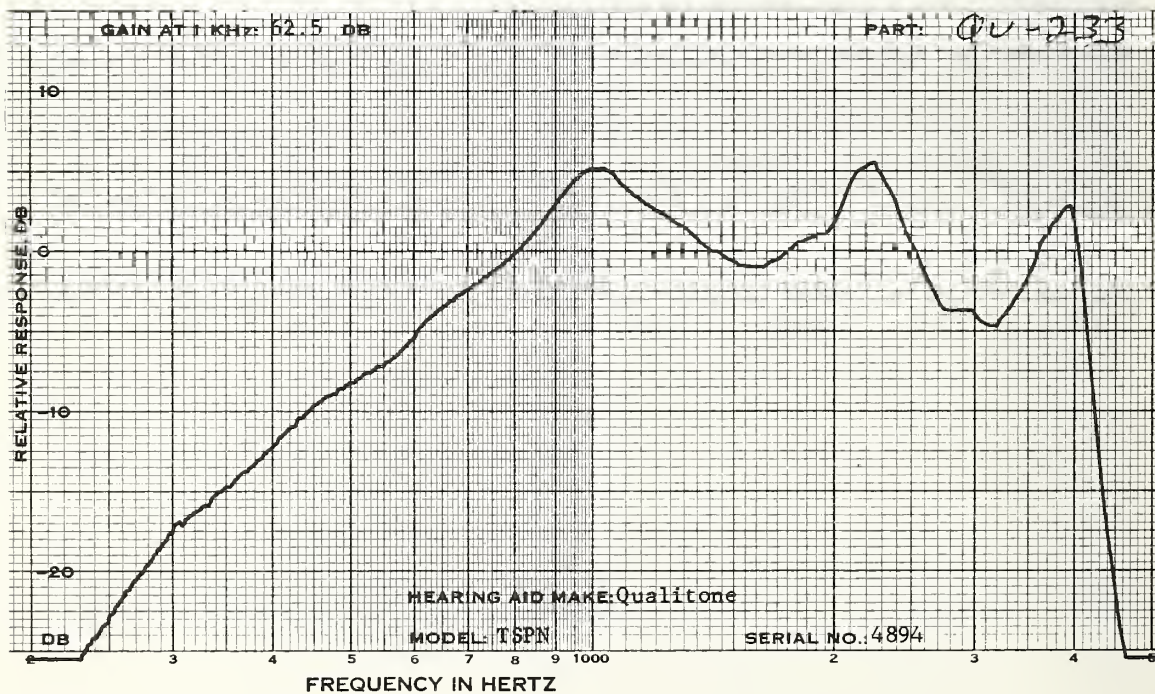
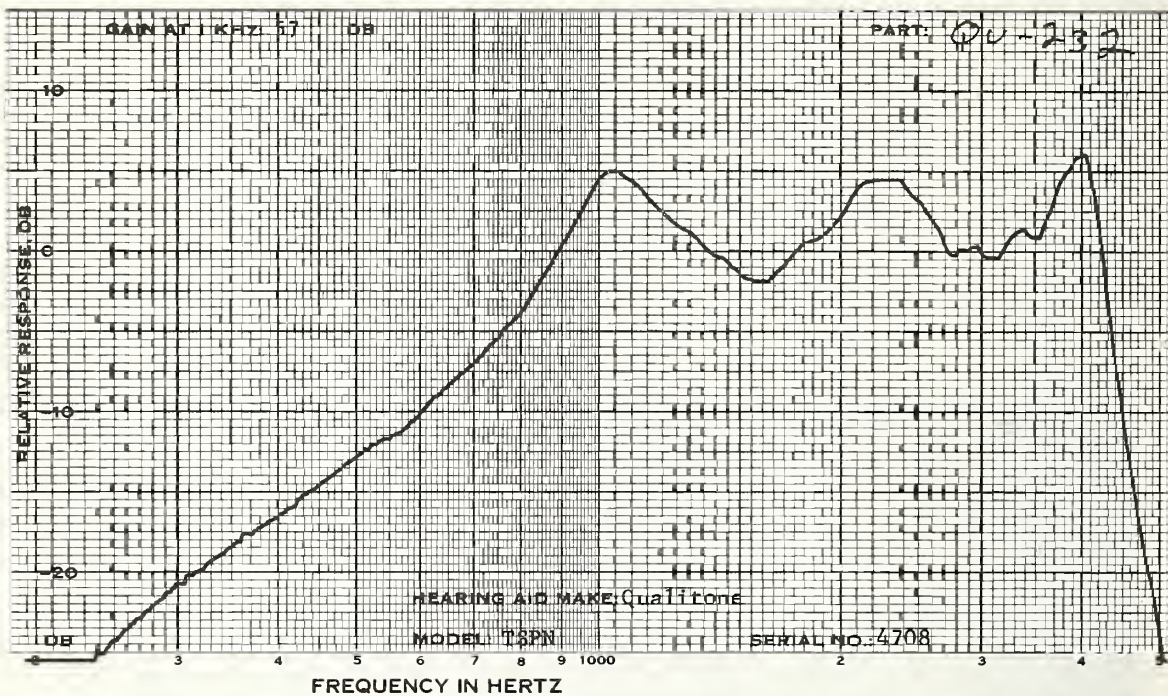
1KHZ GAIN DB	62.0	62.5	64.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	69.0	80.0	78.0
OUTPUT LEVEL DB	124.0	129.0	129.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	57.0	62.5(FULL)	61.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	12 15	14 17	6 19
700 HZ %	6 5	5 9	4 19
900 HZ %	3 4	4 8	4 6
MAX DIST %	12 15	14 17	6 19
FREQ OF MAX DIS	500 500	500 500	500 700
S/N RATIO DB			
1KHZ SIGNAL	49.0	45.5	45.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	.9	.9
65 DB INPUT	2.3	3.3	3.0
BATTERY VOLTAGE	1.58	1.58	1.58







QUALITONE BICR EG  
 MODEL:TSNEB TONE:N(DOT) TUBING:1 1/2 BATTERY:S76

CODE	QU-235	QU-236	QU-237
SERIAL #	7775	7827	7879
DATE		APR 12, 1974	

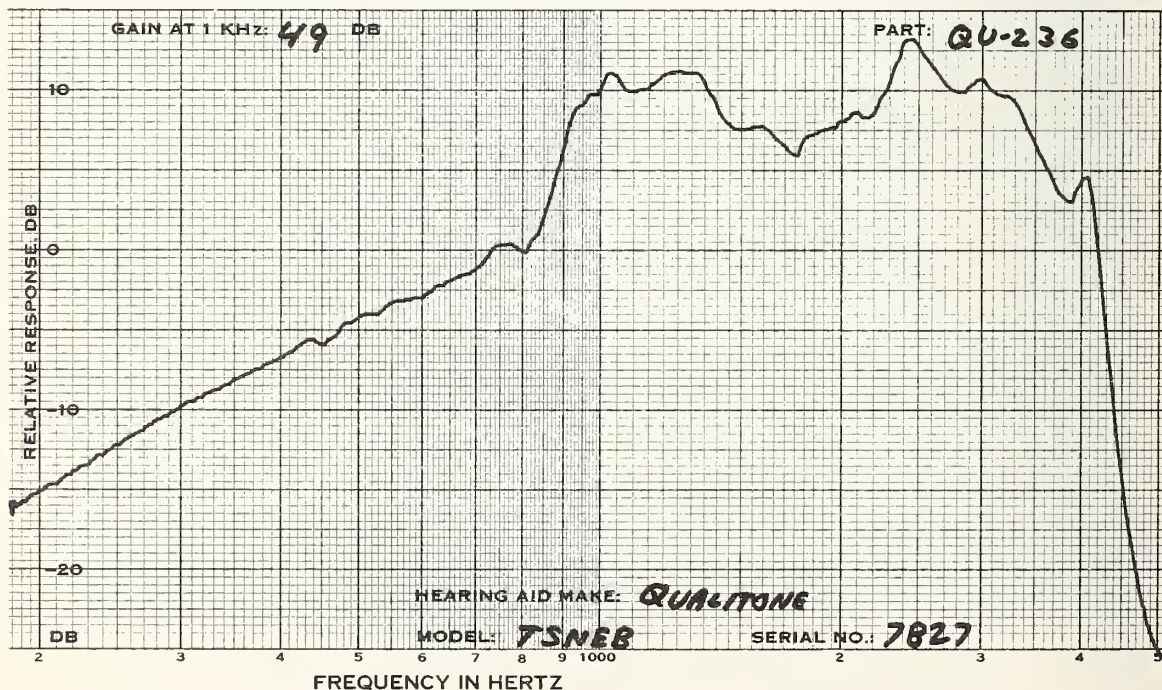
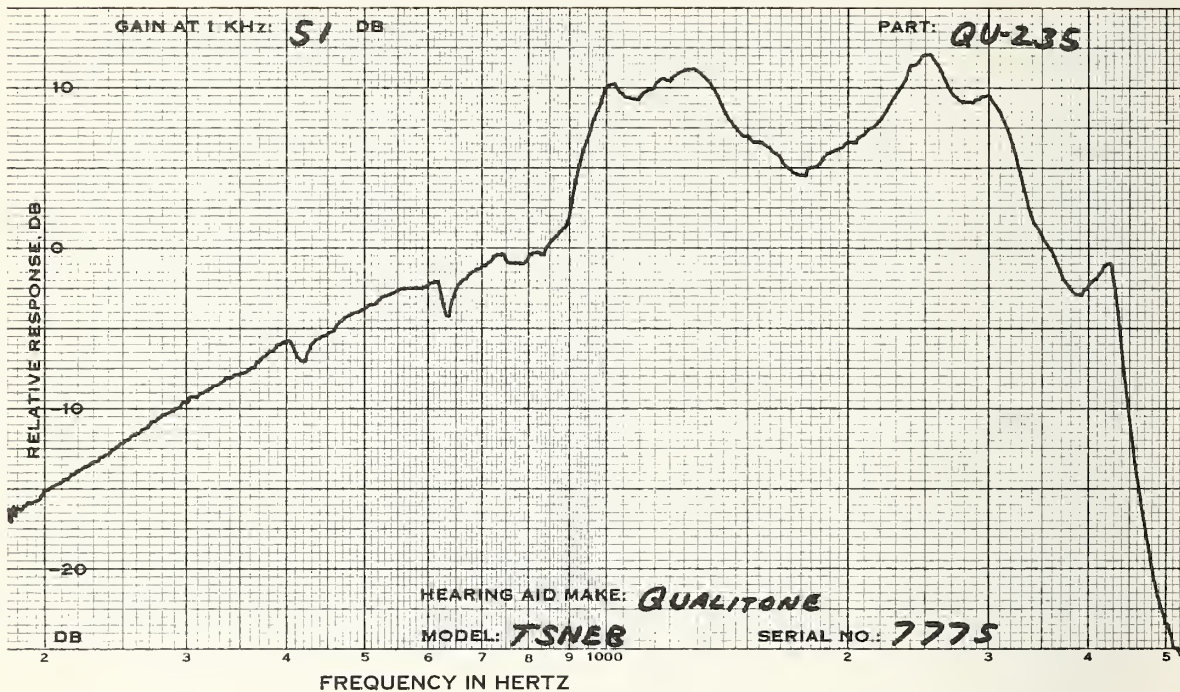
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	51.0	49.0	48.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	76.0	75.5	77.0
OUTPUT LEVEL DB	119.5	119.0	119.5

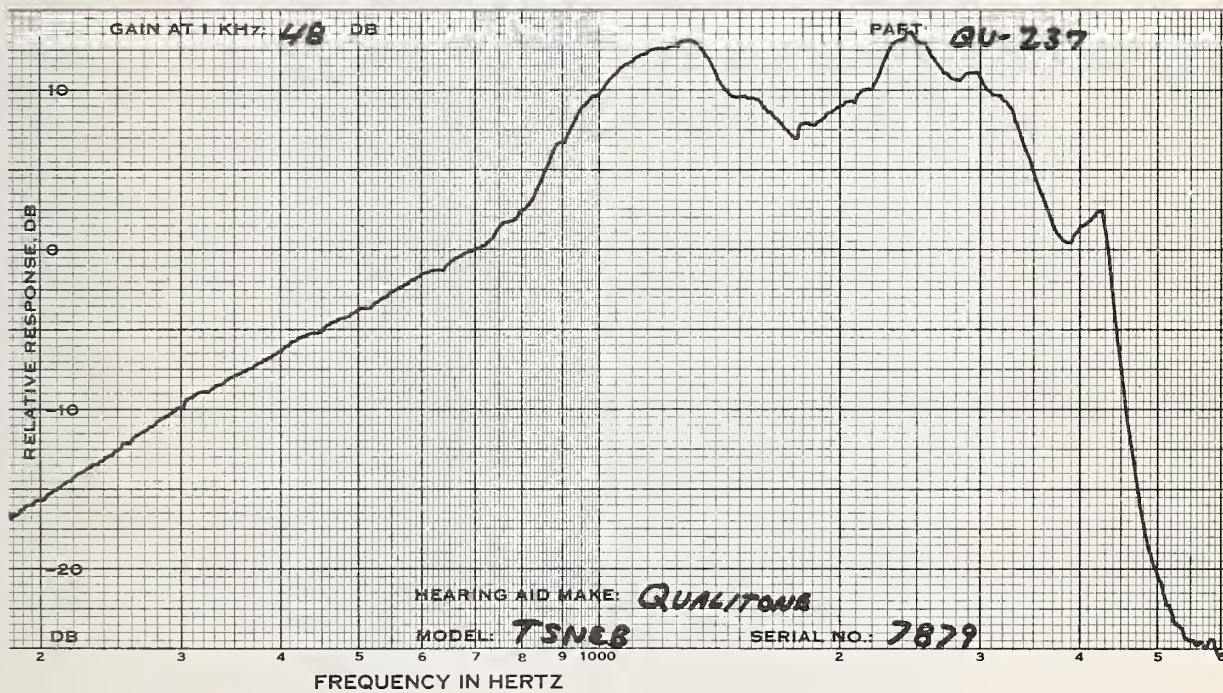
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	51.0(FULL)	49.0(FULL)	48.0(FULL)
HARMONIC DIST			
INPUT LEVEL DB	61.0 71.0	61.0 71.0	62.0 72.0
500 HZ %	4 7	5 5	4 4
700 HZ %	2 3	3 3	3 2
900 HZ %	1 8	1 8	1 3
MAX DIST %	4 14	5 8	5 5
FREQ OF MAX DIS	560 990	500 1590	500 1580
S/N RATIO DB			
1KHZ SIGNAL	42.5	44.0	43.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.4	2.4	2.4
65 DB INPUT	2.4	2.4	2.4
BATTERY VOLTAGE	1.58	1.58	1.57







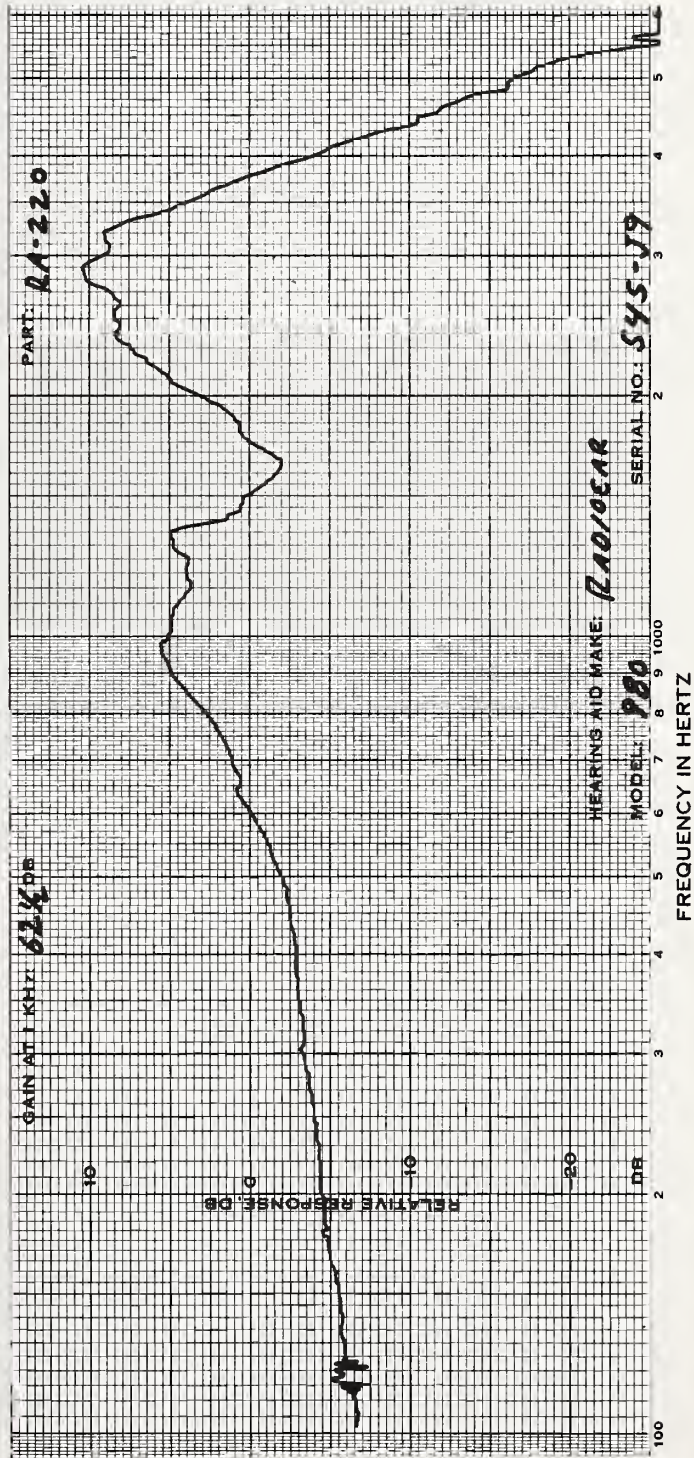


OB

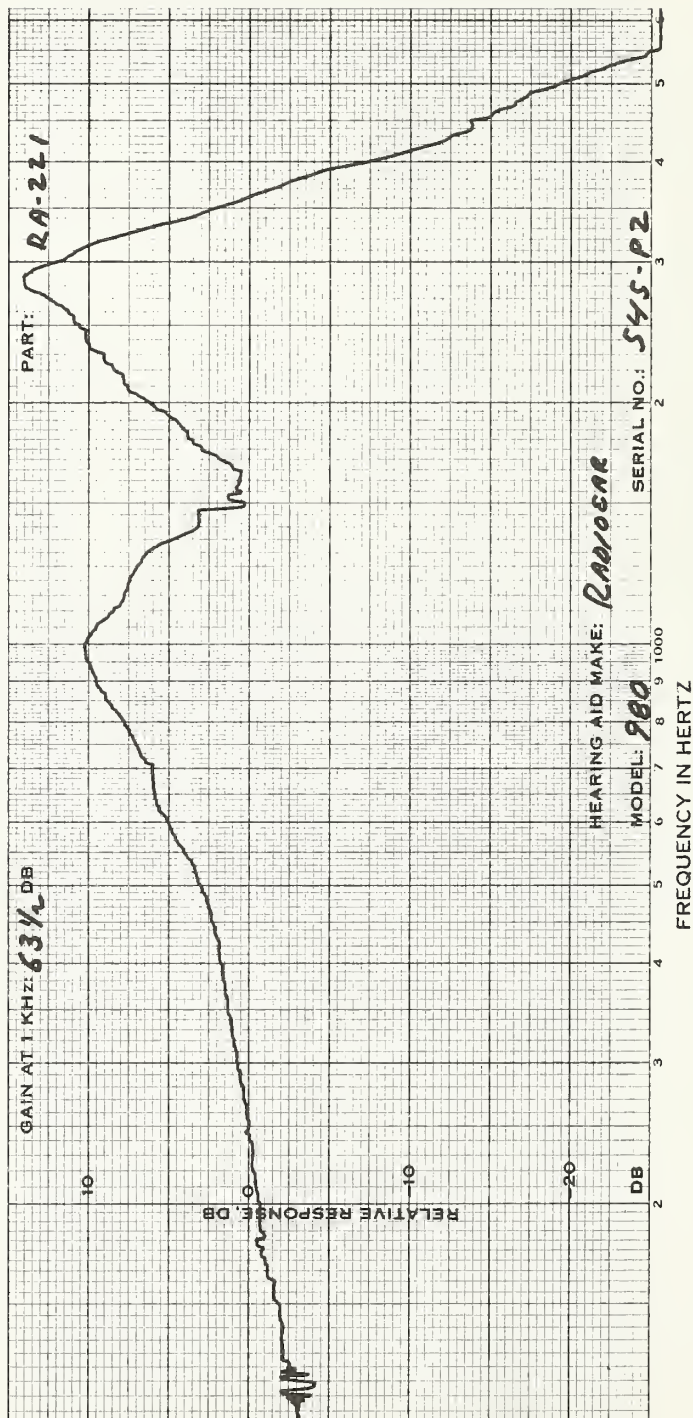
RA-222  
546N5

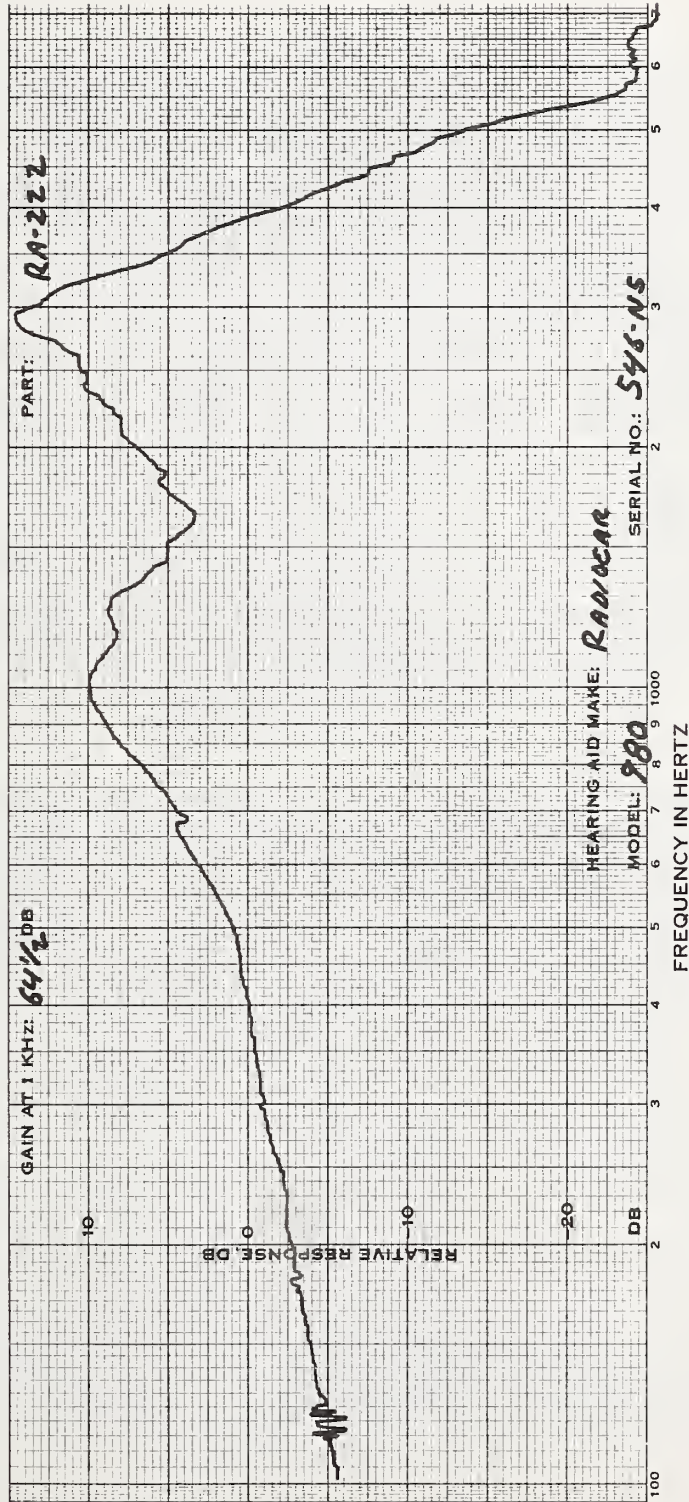
1KHZ GAIN DB	71.5	71.0	71.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.0	74.0	74.0
OUTPUT LEVEL DB	134.0	133.5	133.5

1KHZ GAIN	DB	62.5	63.5	64.5
HARMONIC DIST				
@INPUT LEVEL	DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ	%	8 13	10 15	8 12
700 HZ	%	3 7	3 7	3 7
900 HZ	%	2 3	1 3	3 5
MAX DIST	%	8 13	10 15	8 12
FREQ OF MAX DIS		500 500	500 500	500 500
S/N RATIO	DB			
1KHZ SIGNAL		43.5	44.0	46.5
S/HUM RATIO	DB			
1KHZ SIGNAL		N.M.	N.M.	N.M.
BATTERY DRAIN, MA				
NO INPUT		5.5	6.3	6.1
65 DB INPUT		7.3	8.3	8.7
BATTERY VOLTAGE		1.42	1.45	1.43









RADIOEAR  
 MODEL:980P SCREWS IN:1,2,3,4,5,7 RECEIVER:M98P BATTERY:401

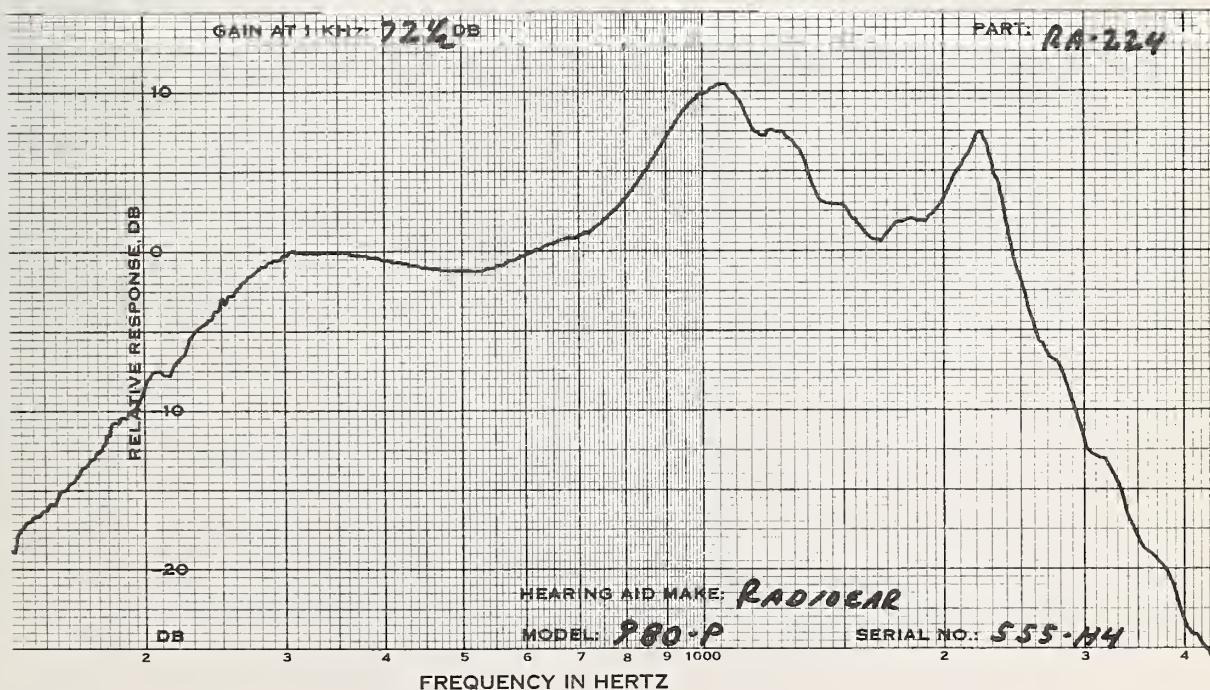
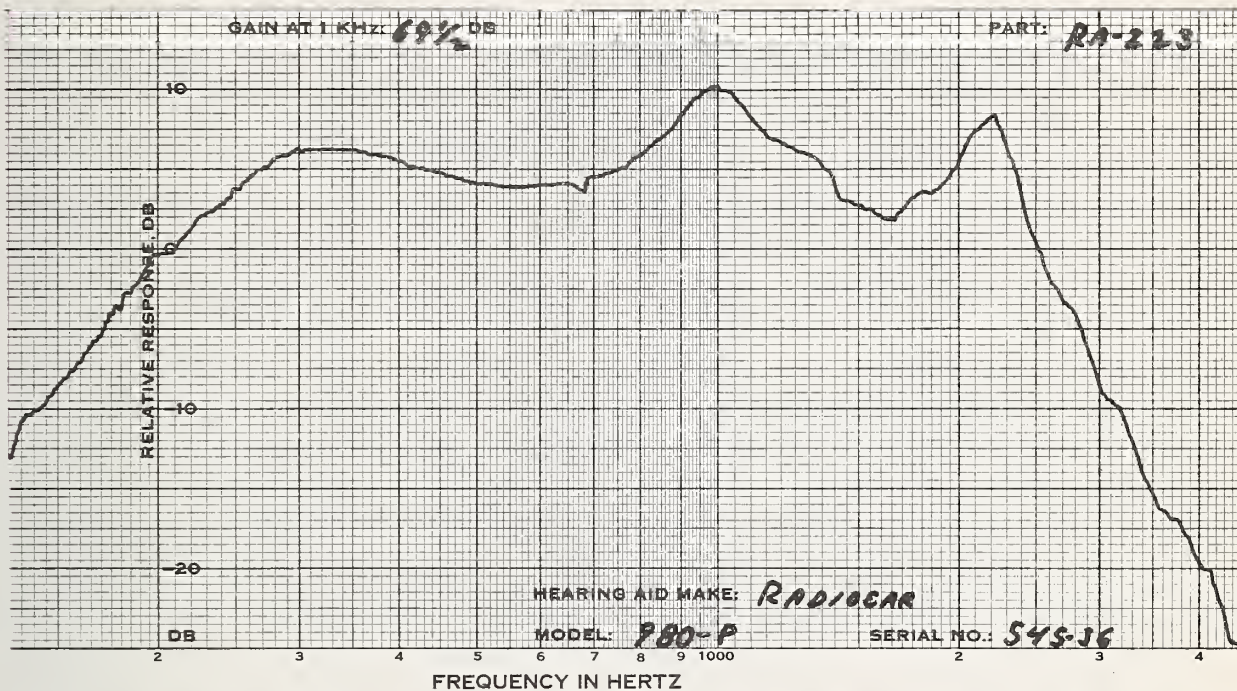
OB

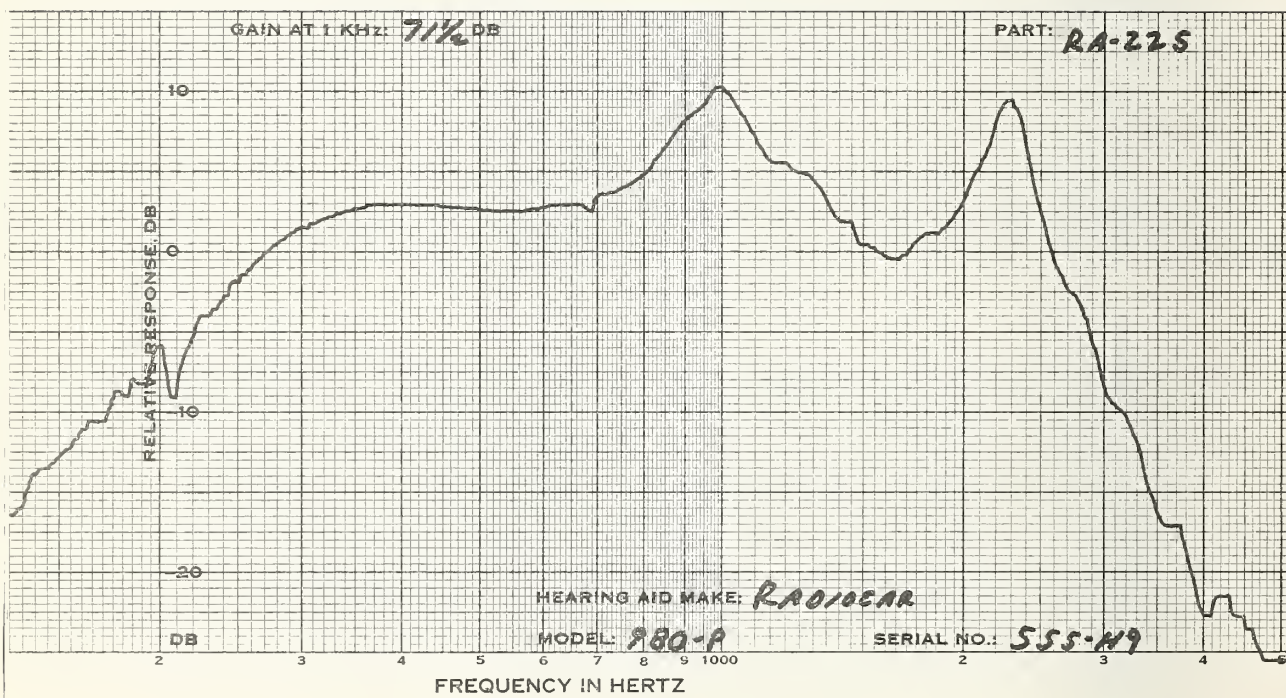
CODE	RA-223	RA-224	RA-225
SERIAL #	545J6	555H4	555H9
DATE		APR 26, 1974	

MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	79.0	80.0	80.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	72.5	73.5	74.0
OUTPUT LEVEL DB	138.0	138.0	138.5

MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	69.5	72.5	71.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	10 28	9 21	13 37
700 HZ %	4 9	4 9	3 6
900 HZ %	2 5	1 3	0 2
MAX DIST %	10 28	9 21	13 37
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	46.5	51.0	48.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	6.5	5.9	6.7
65 DB INPUT	9.7	9.2	9.5
BATTERY VOLTAGE	1.44	1.43	1.44

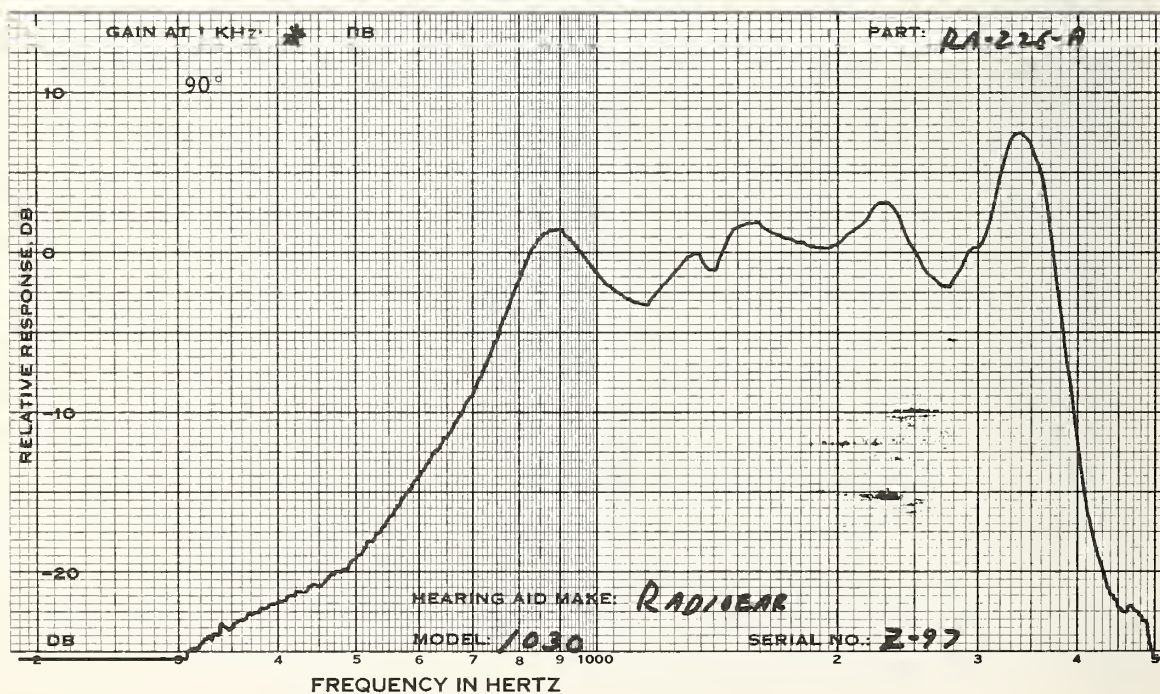
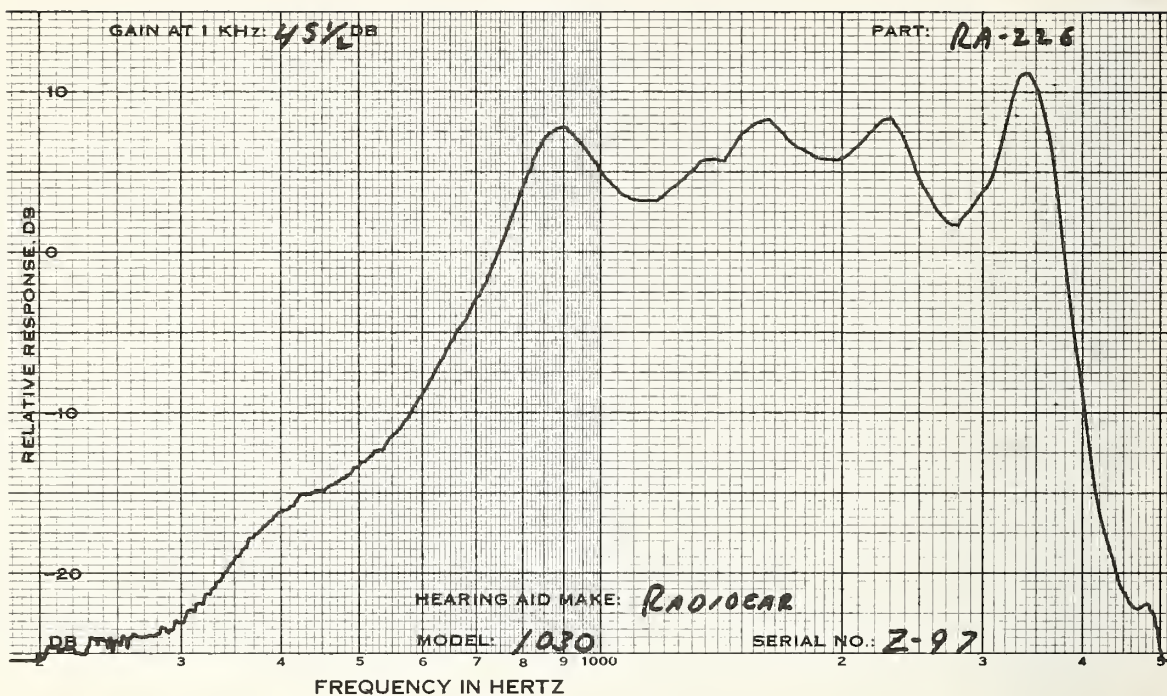




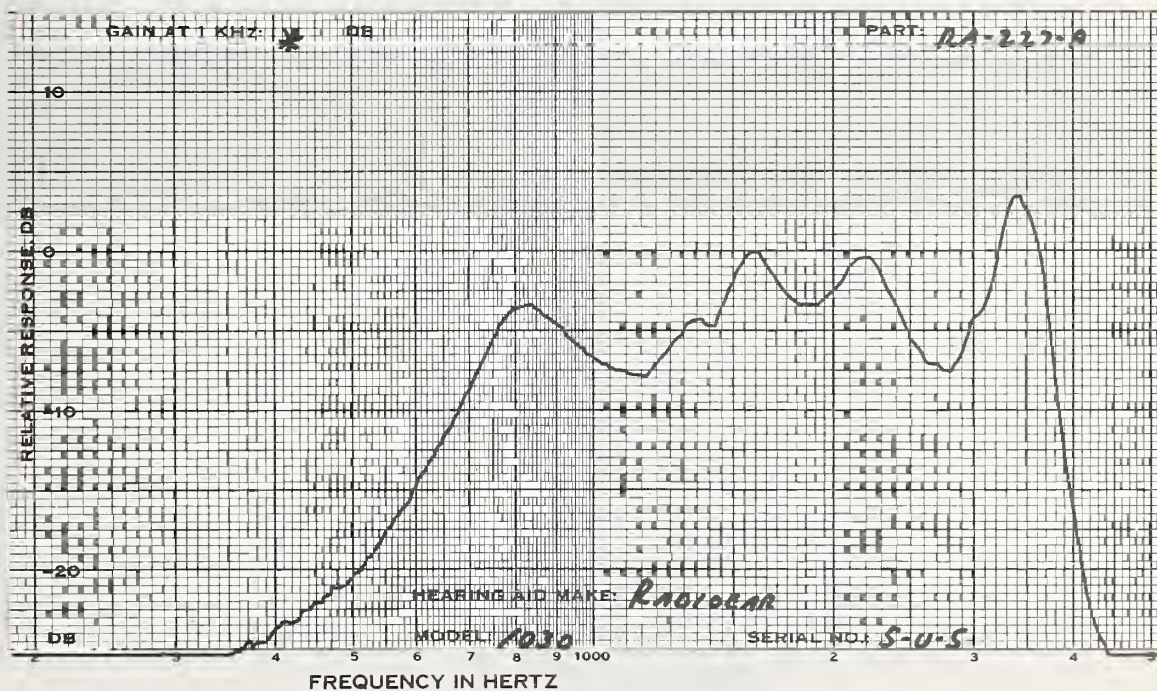
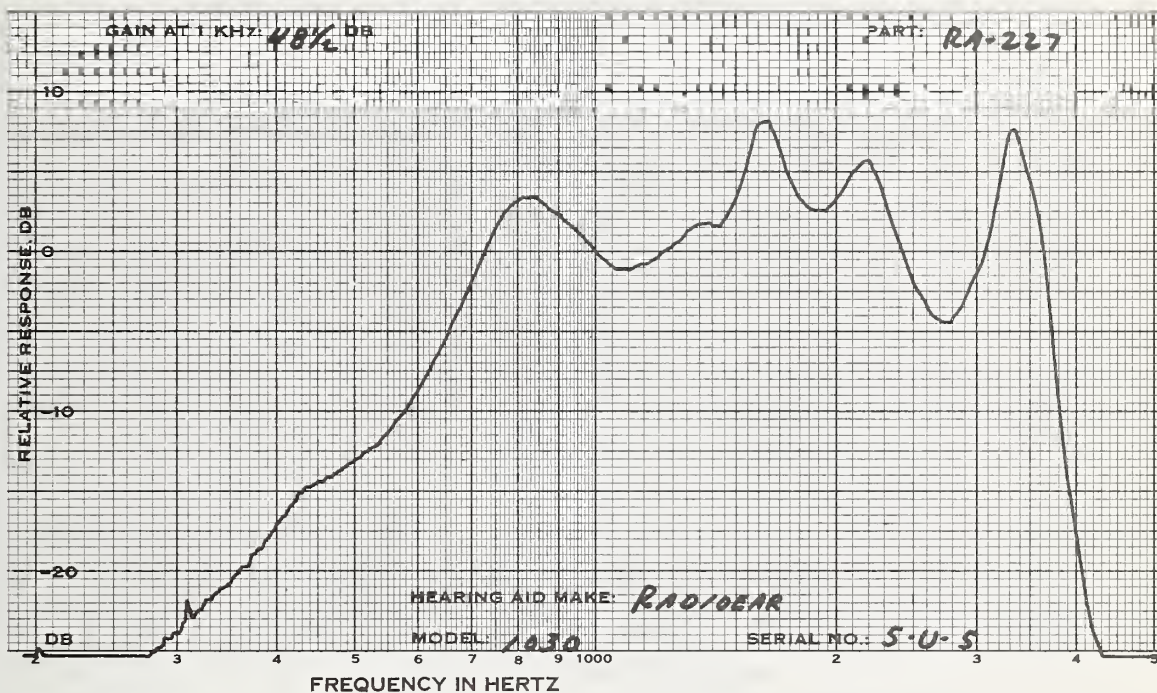




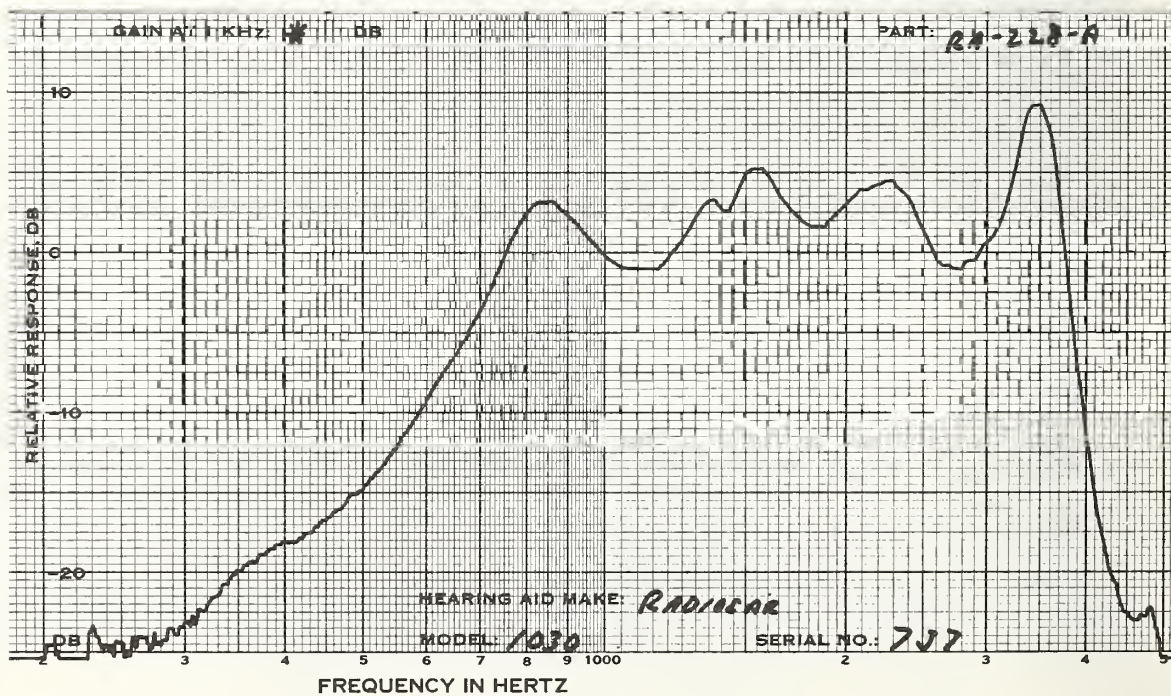
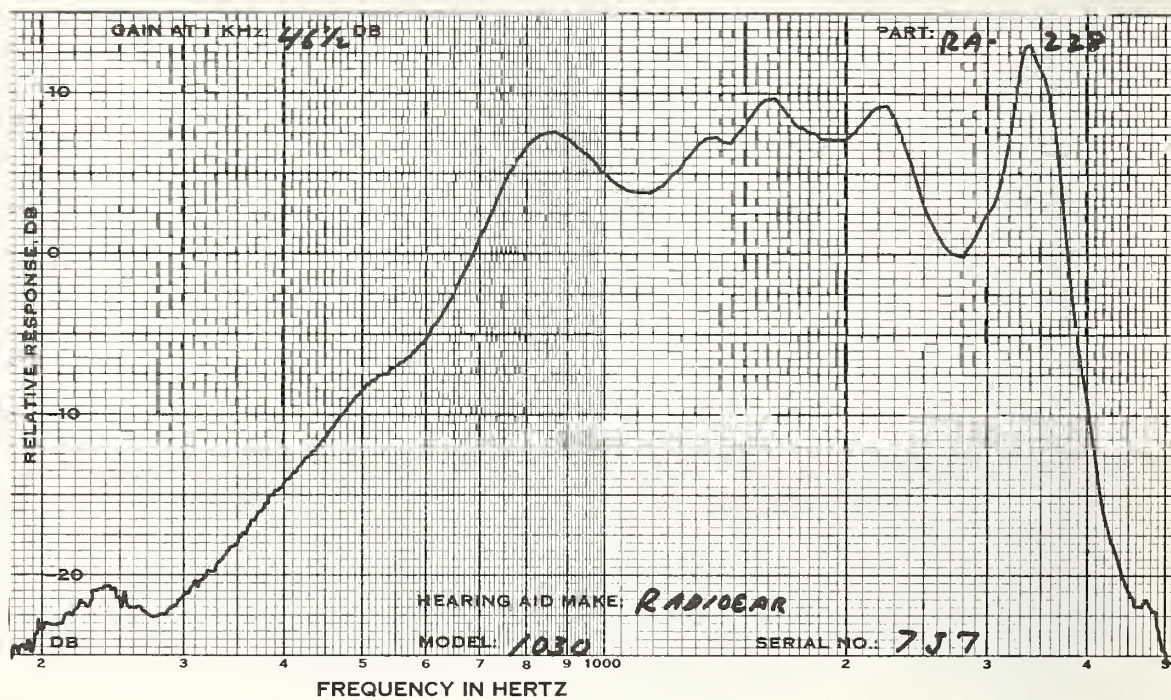














RADIOEAR  
 MODEL:1040 LF CUT:IN(FULL) GAIN:IN(FULL) TUBING:1.30 EG BAT:S76

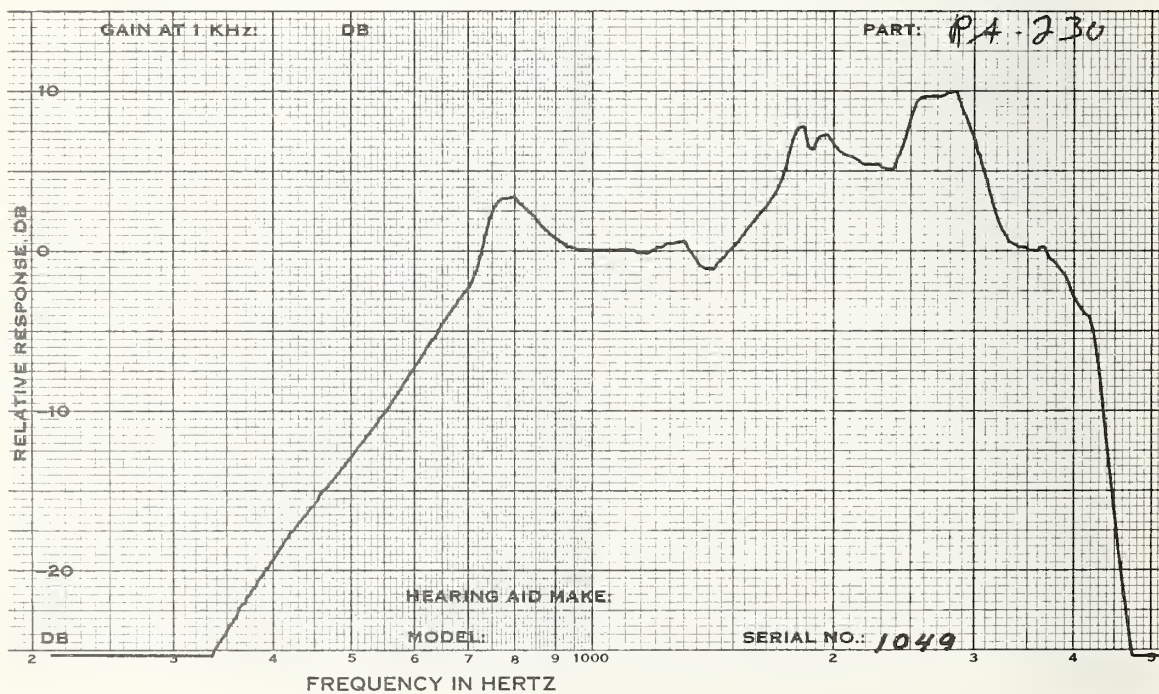
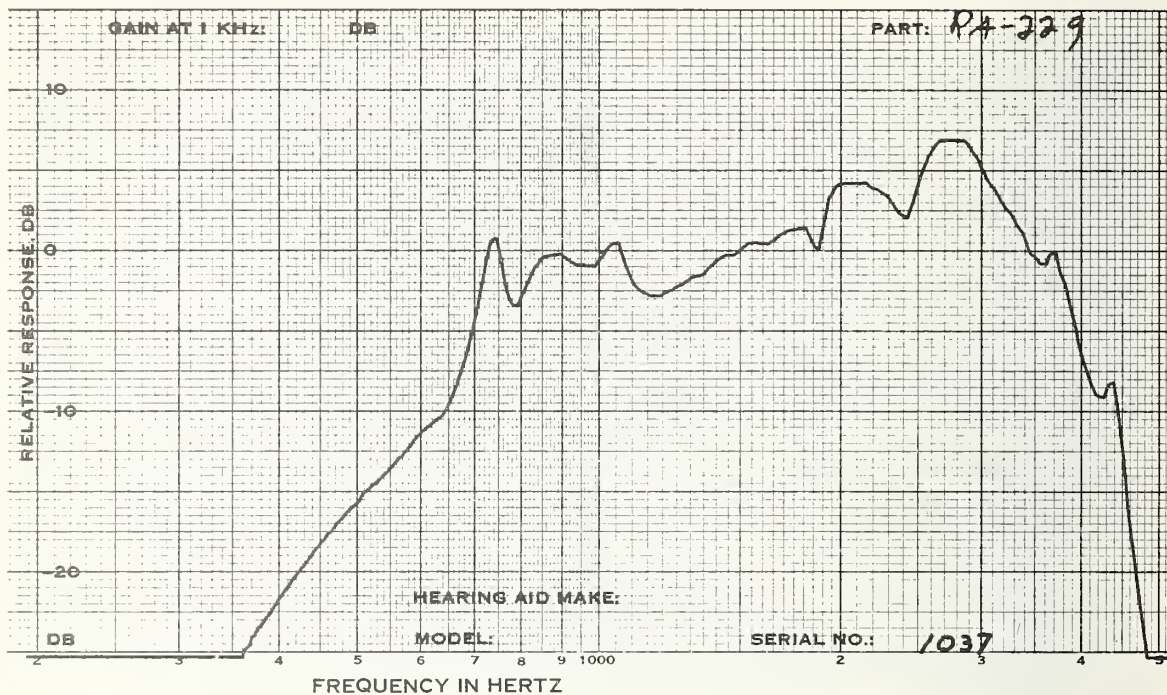
CODE	RA-229	RA-230	RA-231
SERIAL #	1037	1049	1235
DATE		APR 29, 1974	

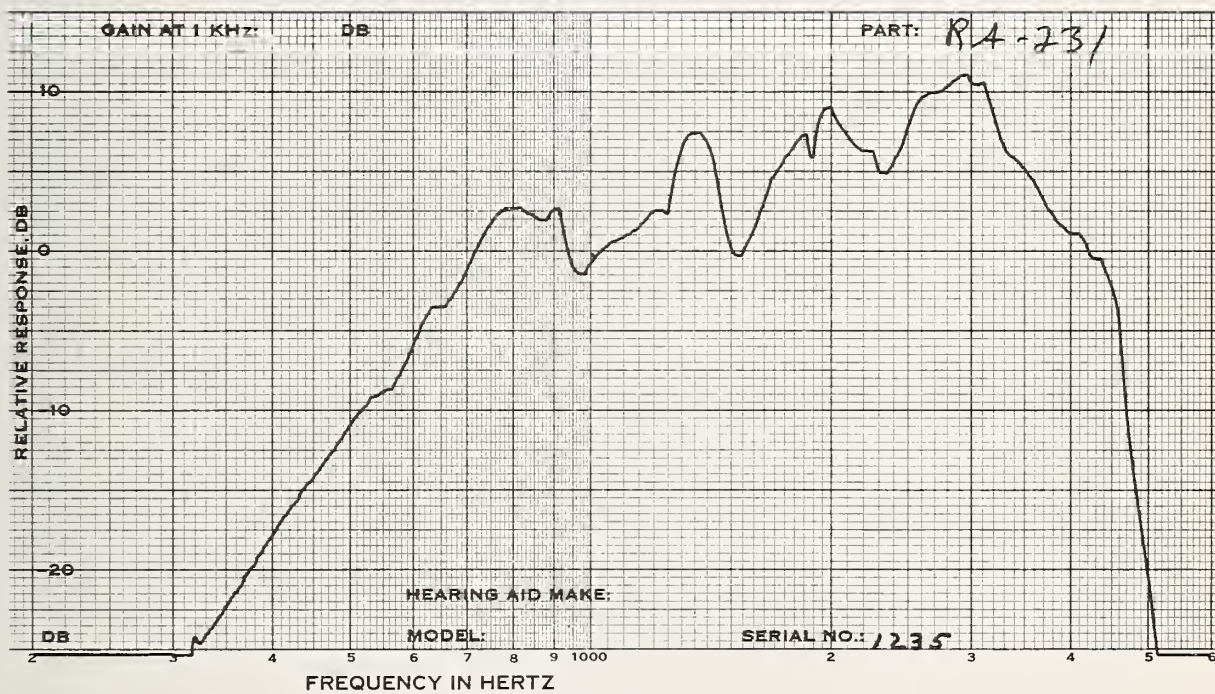
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	62.0	60.5	60.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.0	75.0	75.0
OUTPUT LEVEL DB	127.5	127.5	128.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	56.5	54.0	54.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 4	3 3	4 5
700 HZ %	1 6	2 3	2 5
900 HZ %	2 5	3 1	3 5
MAX DIST %	10 41	8 40	10 51
FREQ OF MAX DIS	1820 1260	1210 1260	1300 1300
S/N RATIO DB			
1KHZ SIGNAL	48.5	47.5	45.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	.8	1.1
65 DB INPUT	2.0	1.7	2.3
BATTERY VOLTAGE	1.58	1.58	1.58







RCI  
 MODEL: MICROFRONT SOFT SOUND TONE:1 TUBING:1 1/8 BATTERY:675

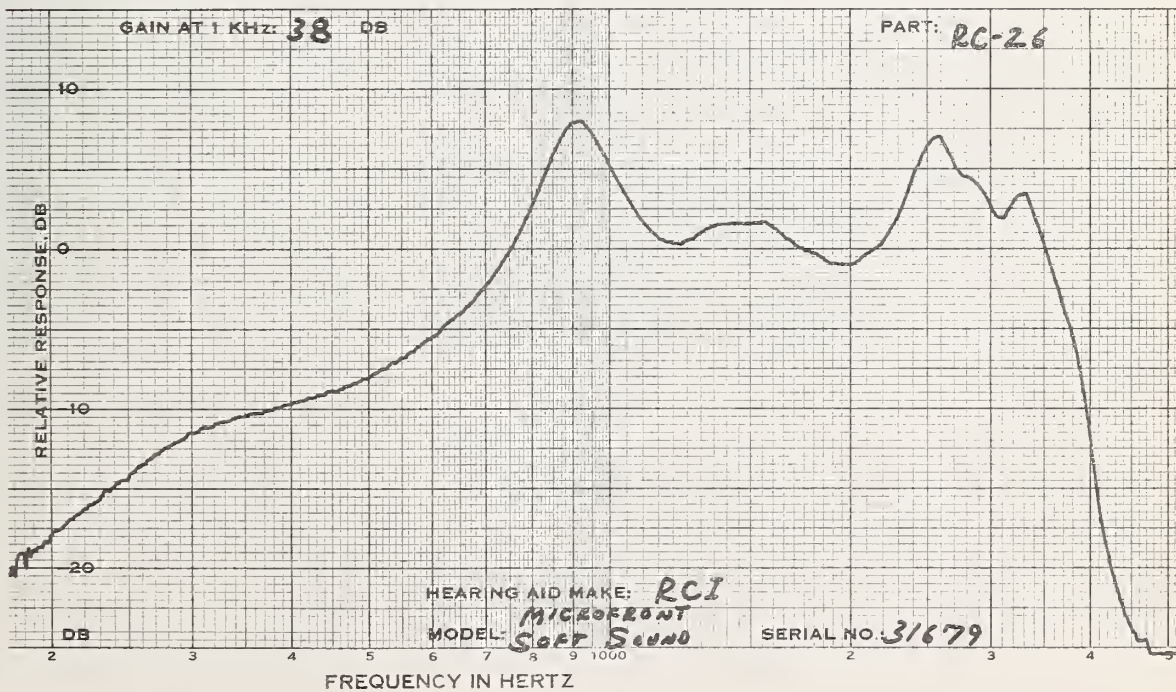
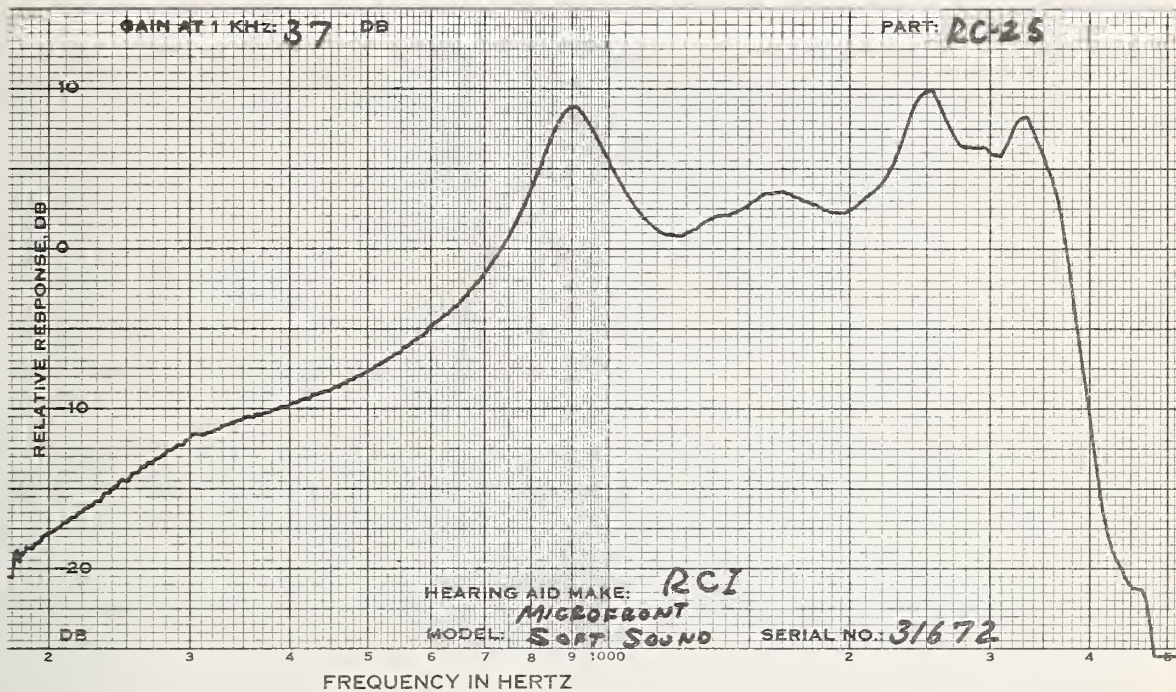
CODE	RC-025	RC-026	RC-027
SERIAL #	31672	31679	31692
DATE		FEB 15, 1974	

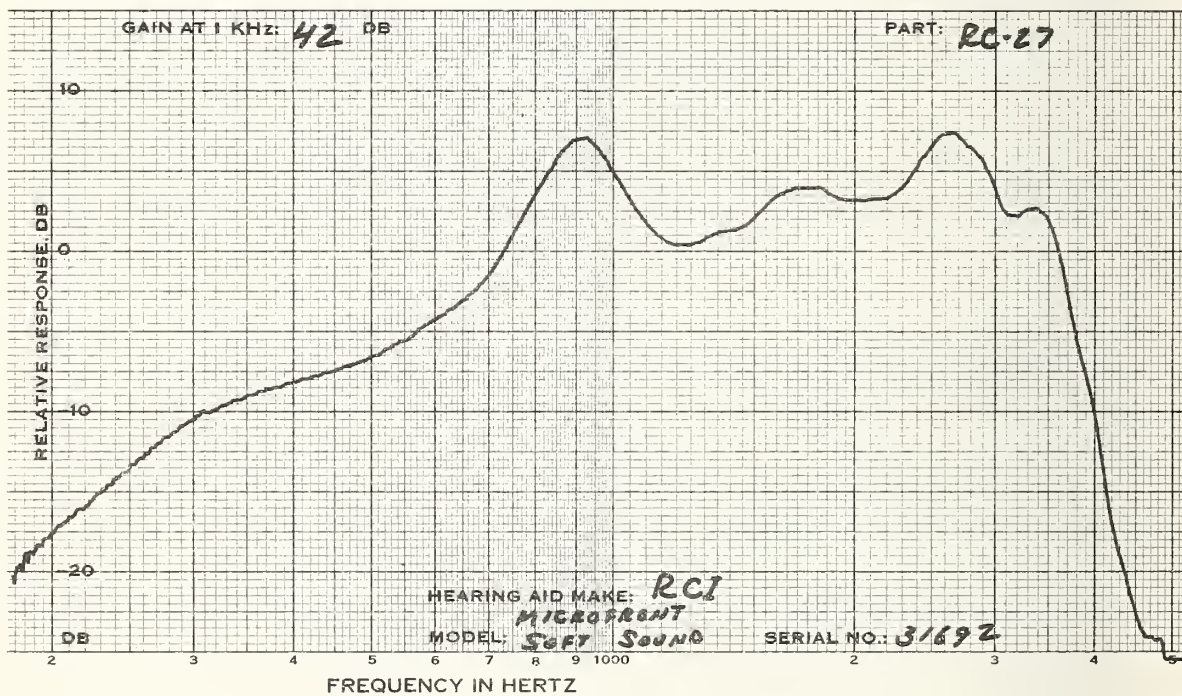
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	37.0	38.0	42.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	81.0	83.0	80.0
OUTPUT LEVEL DB	112.5	113.0	114.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	37.0(FULL)	38.0(FULL)	42.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	65.0 75.0	65.0 75.0	62.5 72.5
500 HZ %	2 3	2 5	2 4
700 HZ %	1 1	1 1	1 4
900 HZ %	0 0	0 0	0 3
MAX DIST %	2 79	2 63	8 73
FREQ OF MAX DIS	500 1550	500 1530	1650 1640
S/N RATIO DB			
1KHZ SIGNAL	39.5	40.0	41.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.9
65 DB INPUT	.8	.8	.9
BATTERY VOLTAGE	1.37	1.38	1.36







RCI  
MODEL: MICROFRONT WIDE BAND TONE:1 TUBING:1 1/8 BATTERY:675

OE

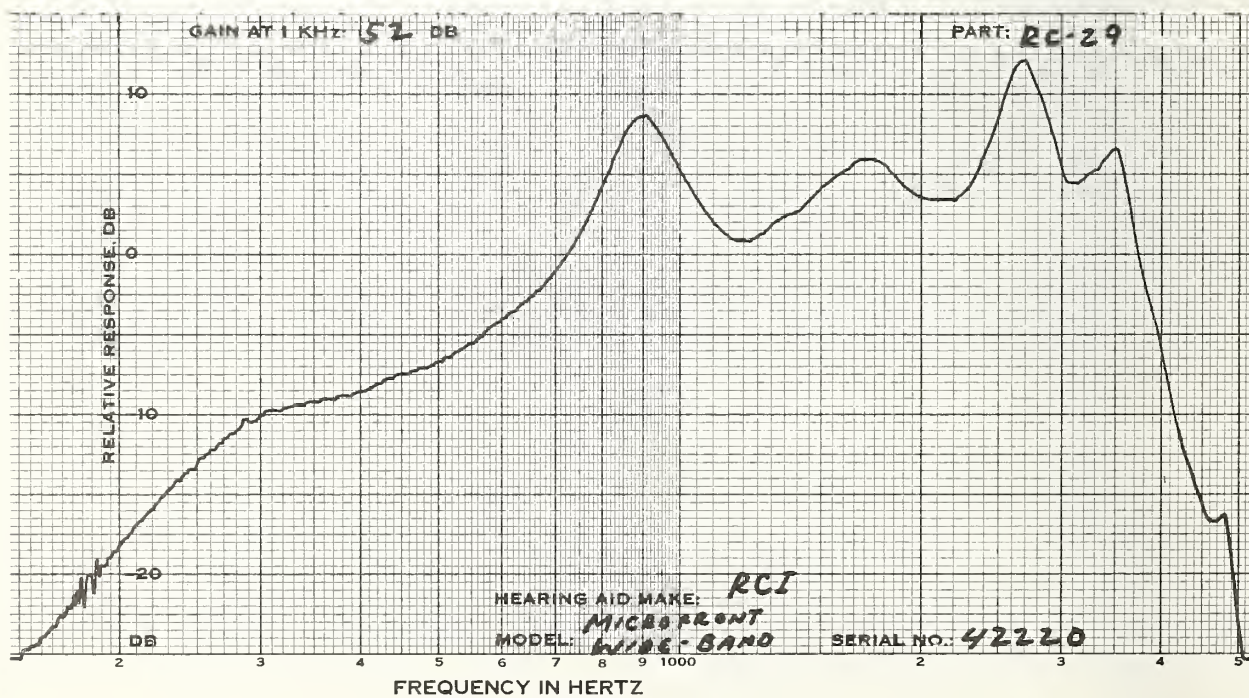
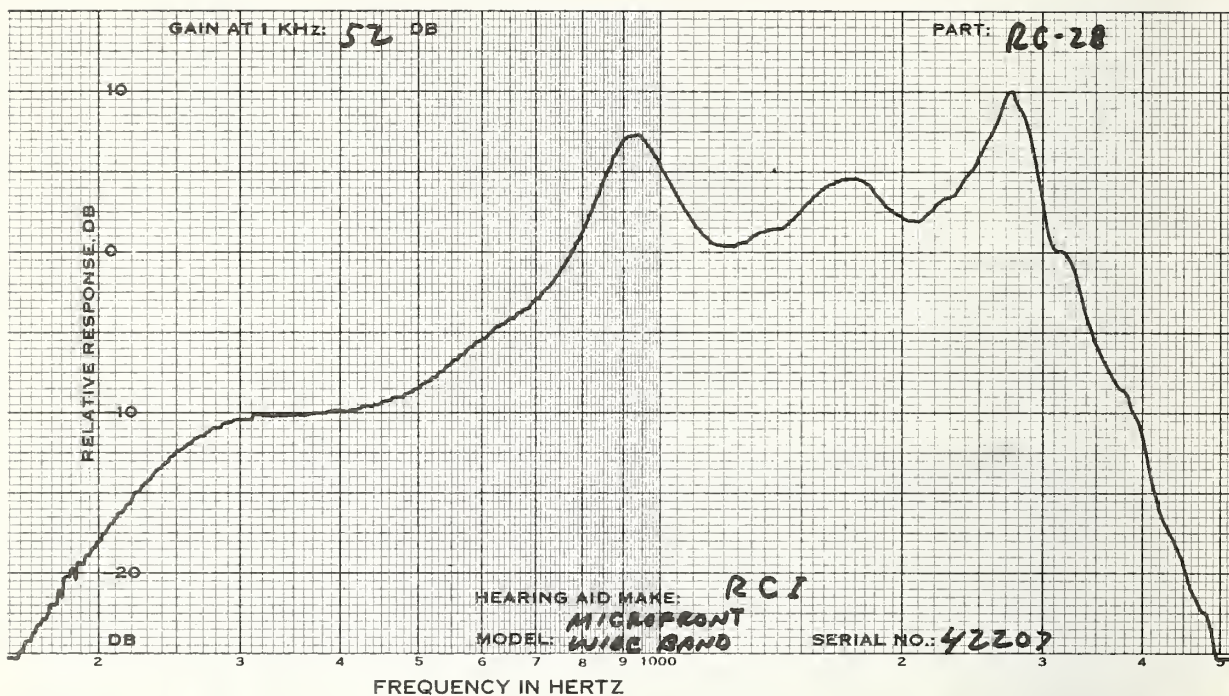
CODE	RC-028	RC-029	RC-030
SERIAL #	42207	42220	42228
DATE		FEB 19, 1974	

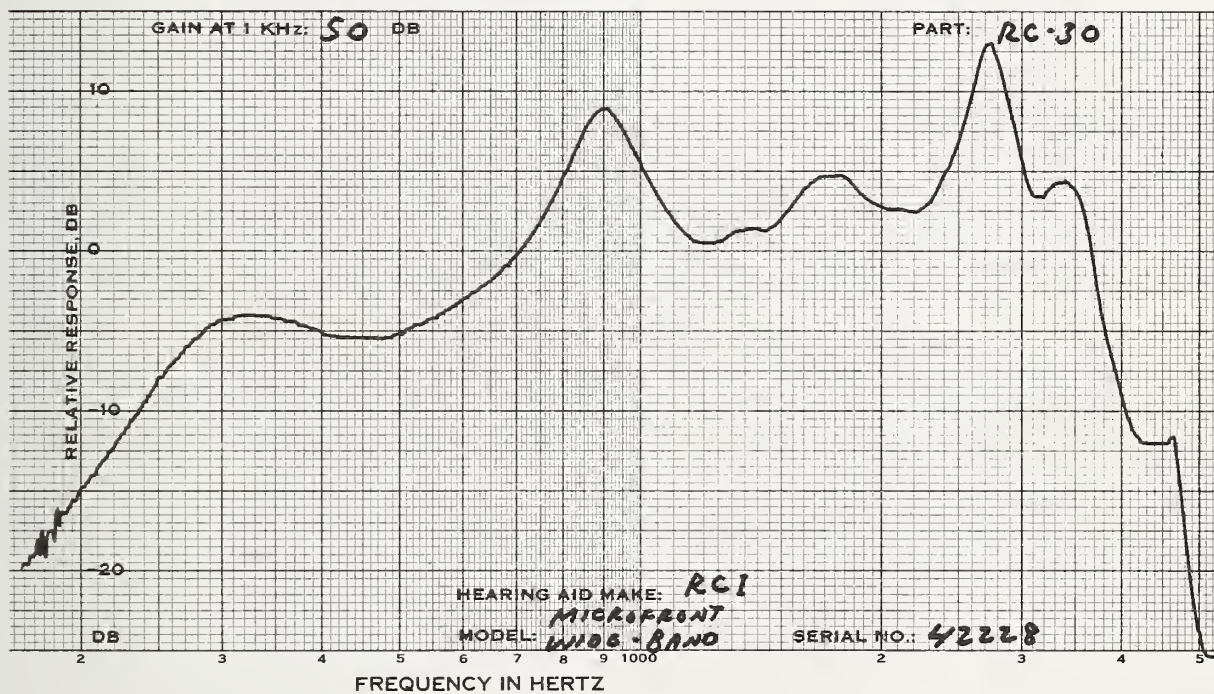
MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	52.0	52.0	50.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	81.0	81.0	80.0
OUTPUT LEVEL DB	121.5	122.0	122.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	52.0(FULL)	52.0(FULL)	50.0(FULL)
HARMONIC DIST			
INPUT LEVEL DB	60.5 70.5	60.0 70.0	62.0 72.0
500 HZ %	3 17	3 14	3 18
700 HZ %	1 2	1 3	1 1
900 HZ %	1 1	1 1	1 0
MAX DIST %	3 17	3 14	3 18
FREQ OF MAX DIS	530 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.0	43.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.6	1.6	1.6
65 DB INPUT	1.6	1.6	1.6
BATTERY VOLTAGE	1.34	1.37	1.35







RCI DIR OE  
 MODEL: MICROFRONT WB, DIRECTIONAL TONE:1 TUBING:1 1/8 BATTERY:675

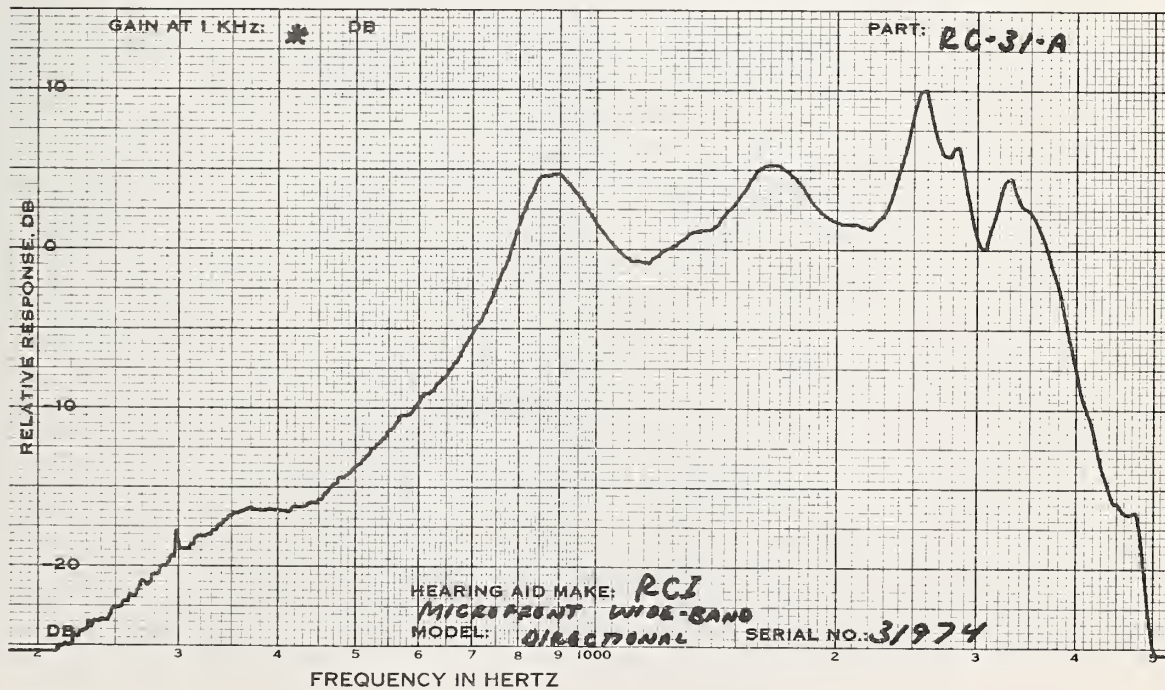
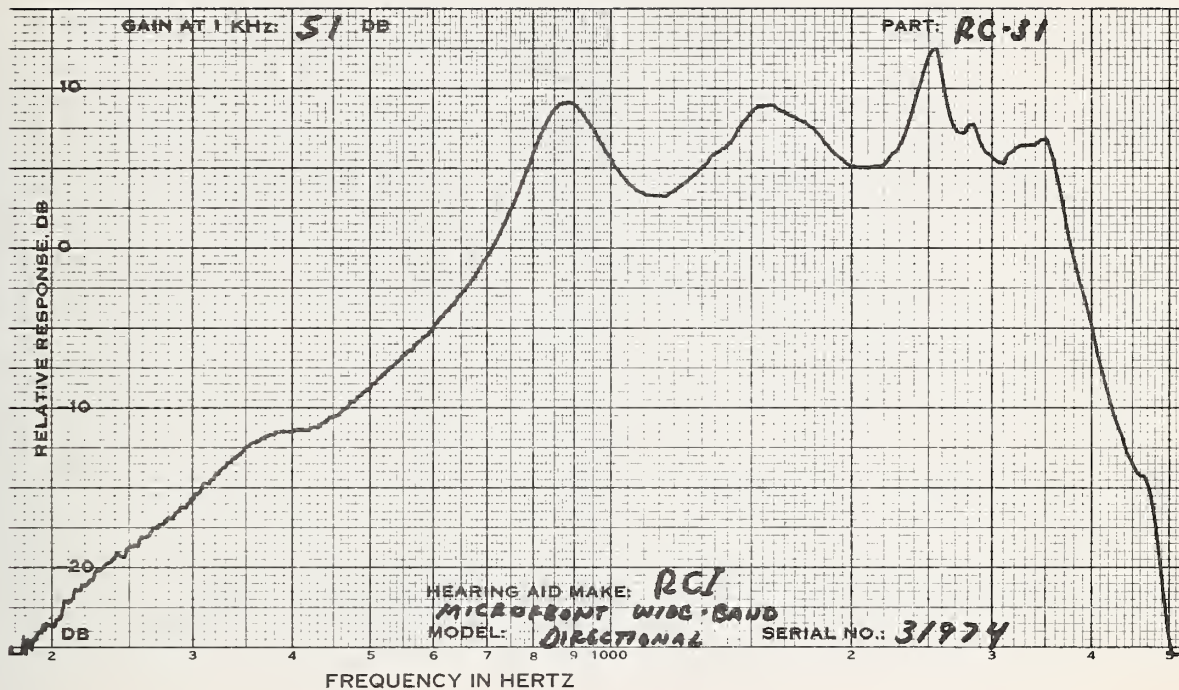
CODE	RC-031	RC-032	RC-033
SERIAL #	31974	31989	31995
DATE		FEB 19, 1974	

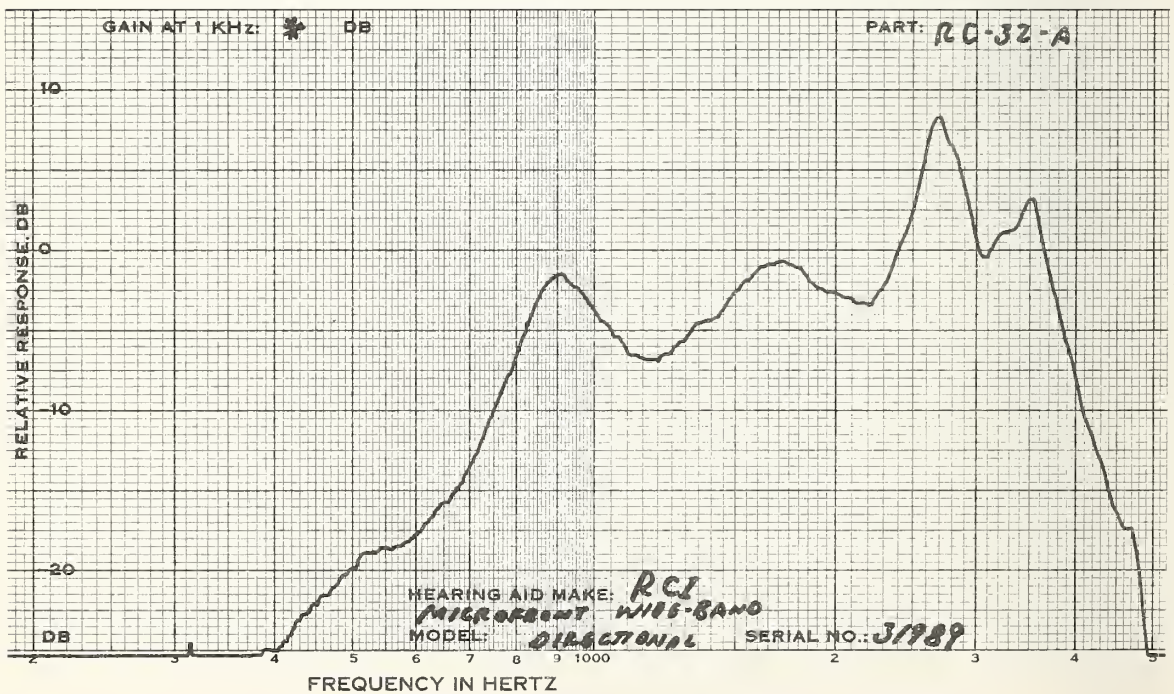
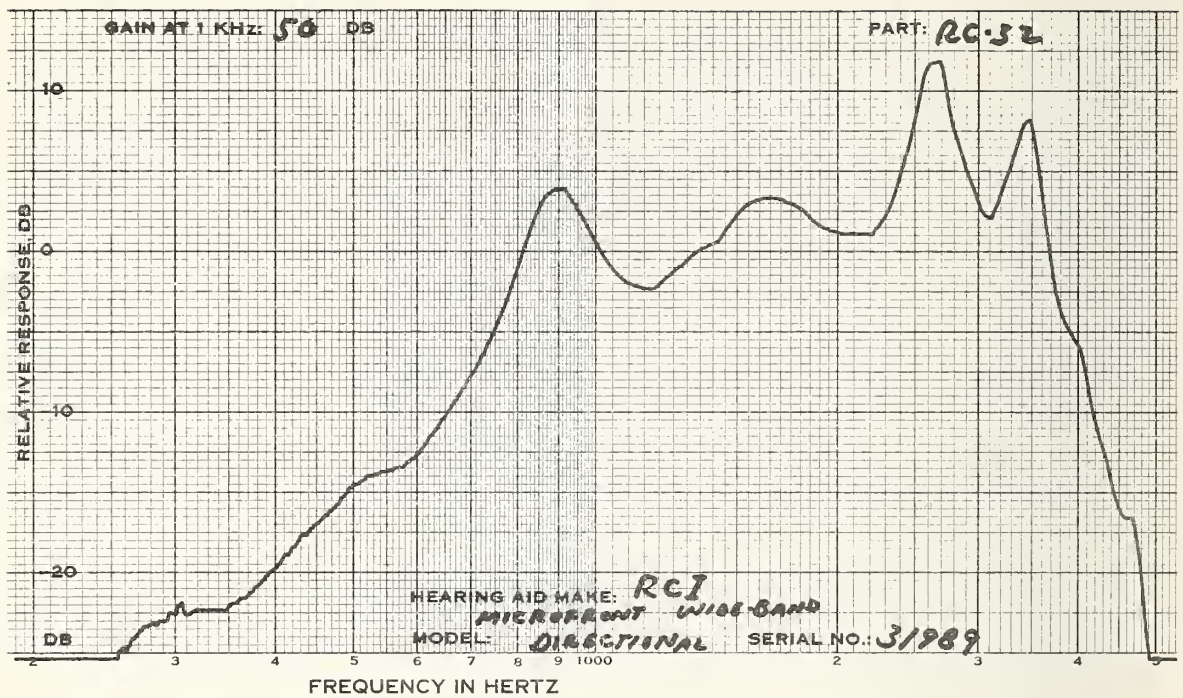
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	51.0	50.0	51.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	82.0	81.0
OUTPUT LEVEL DB	122.5	123.0	123.0

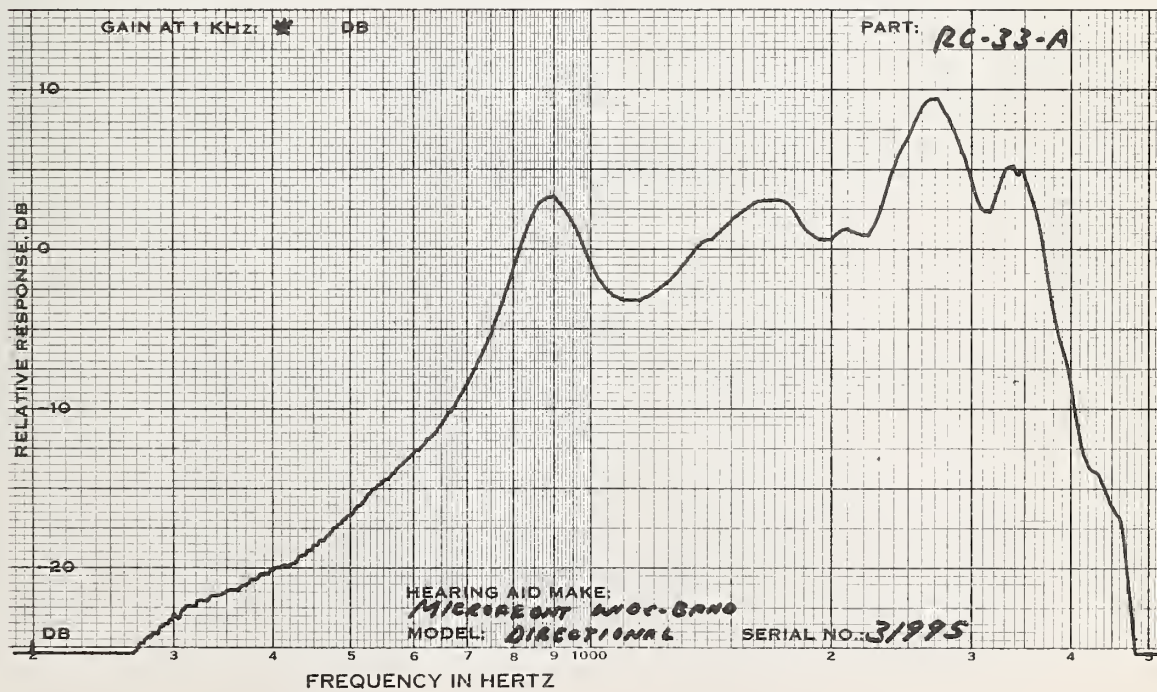
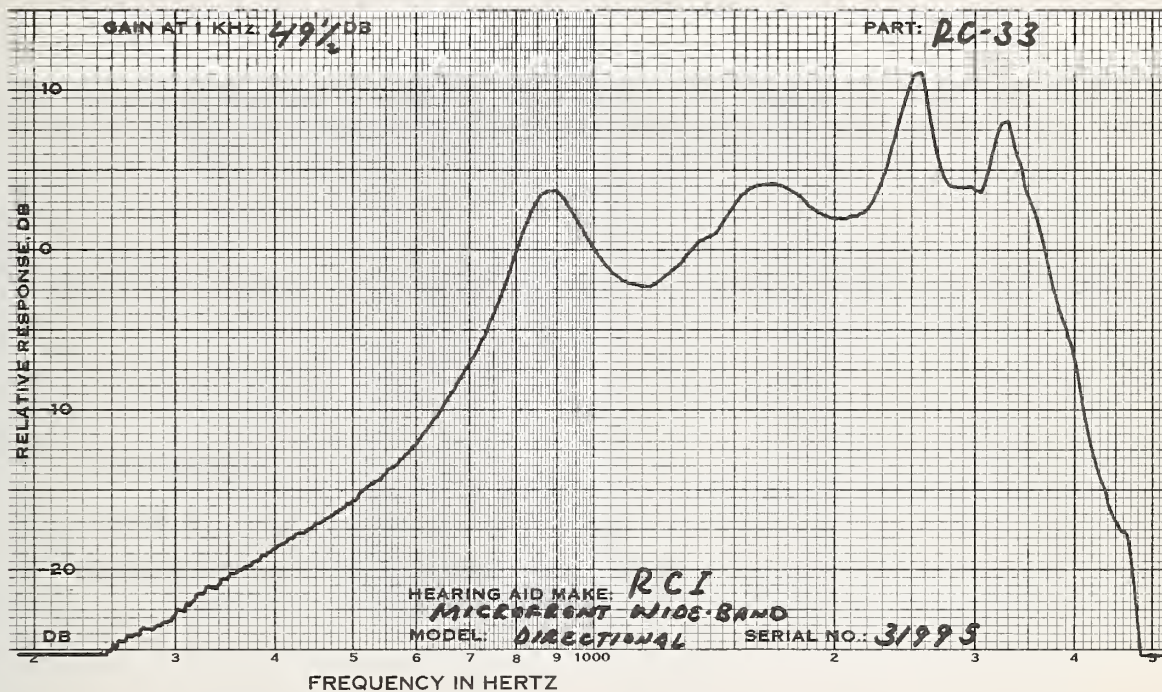
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	51.0(FULL)	50.0(FULL)	49.5
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 5	6 5	7 4
700 HZ %	1 3	2 2	2 1
900 HZ %	1 3	2 1	2 2
MAX DIST %	4 23	6 25	7 27
FREQ OF MAX DIS	500 1290	1270 1270	500 1540
S/N RATIO DB			
1KHZ SIGNAL	42.0	40.0	40.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.5	1.5	1.7
65 DB INPUT	1.5	1.5	1.7
BATTERY VOLTAGE	1.38	1.38	1.36









RCI  
 MODEL: PHONETTE SUPER POWER HI:1 LO:1 TUBING:1 1/8 BATTERY:675

CODE	RC-034	RC-035	RC-036
SERIAL #	42270	42285	42290
DATE		FEB 14, 197	

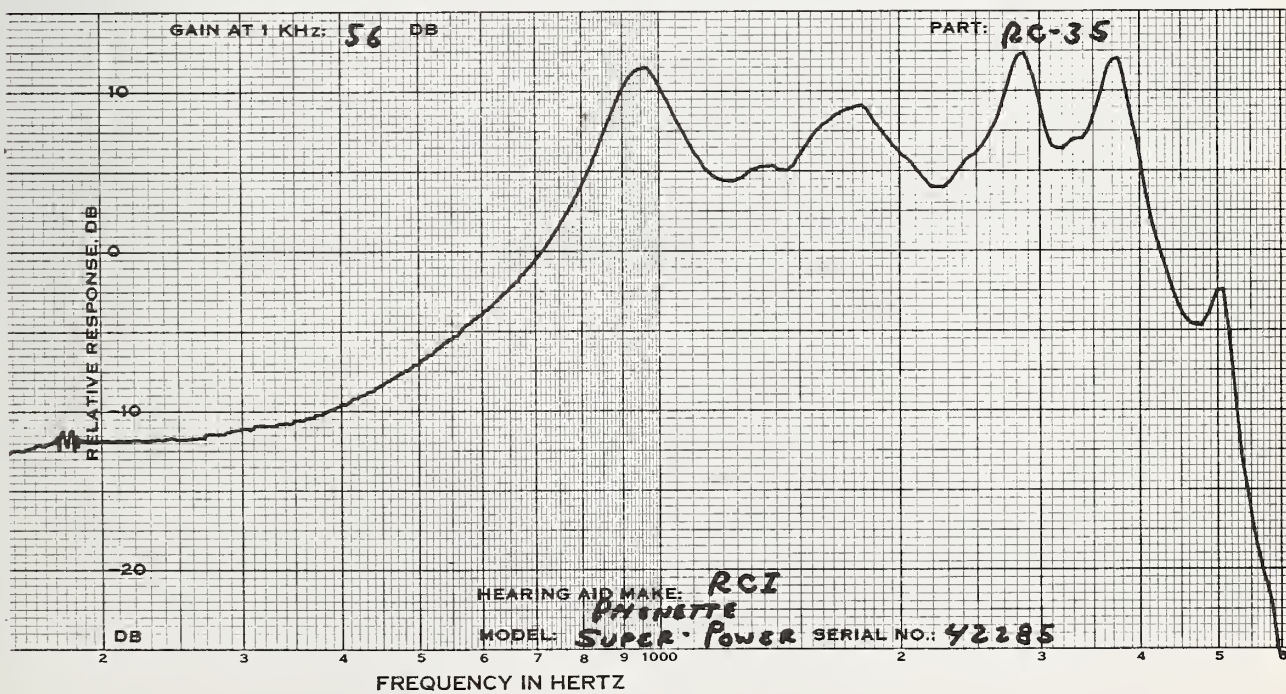
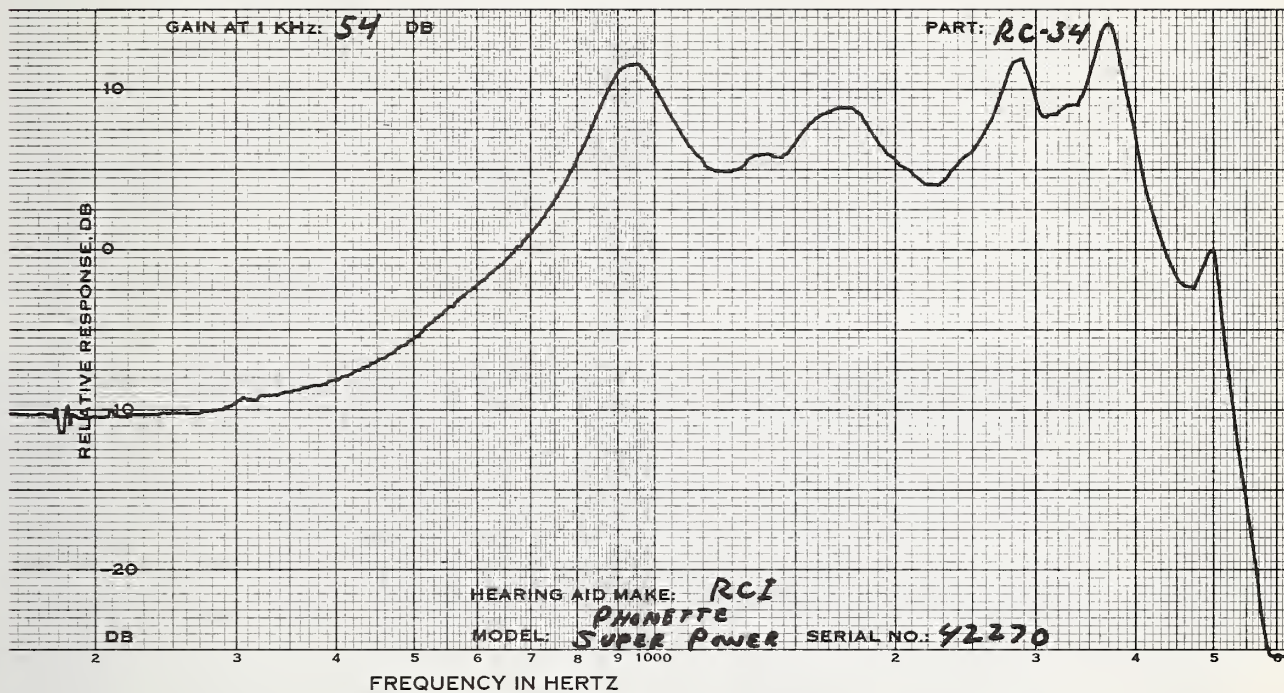
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	61.0	64.0	64.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	80.0	80.0
OUTPUT LEVEL DB	123.0	123.5	123.5

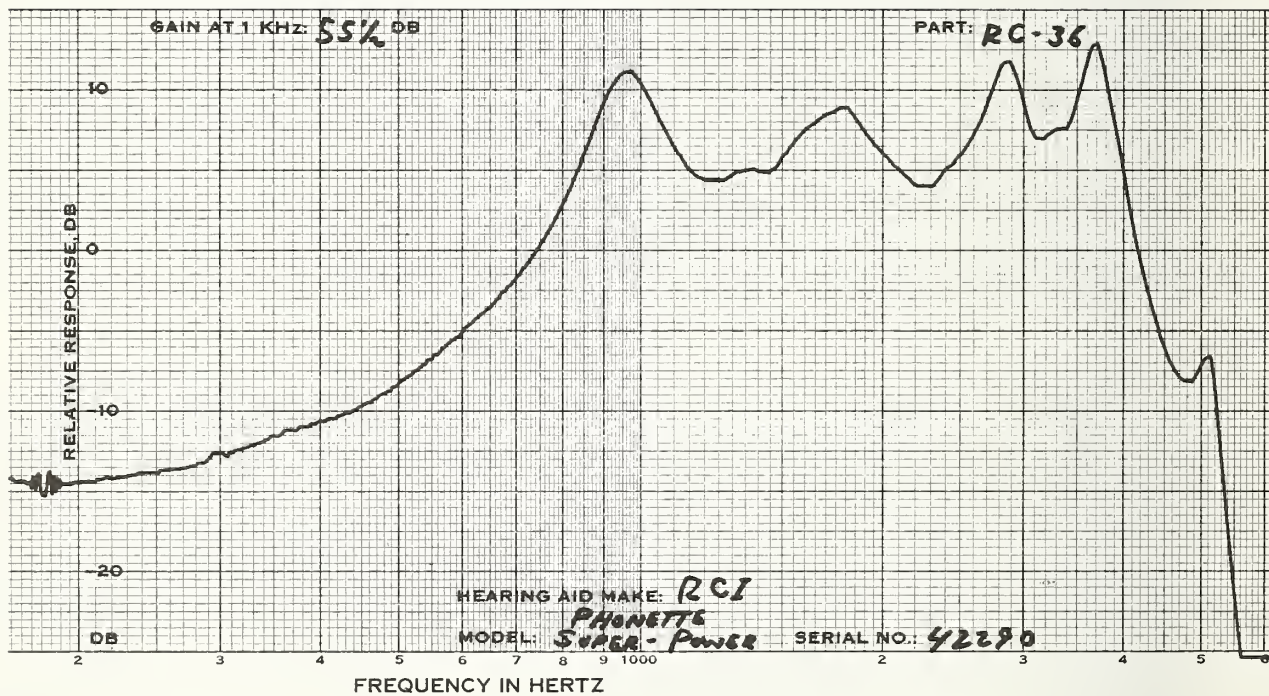
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	54.0	56.0	55.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 28	4 19	6 7
700 HZ %	1 12	1 9	1 5
900 HZ %	0 4	0 4	1 4
MAX DIST %	4 28	4 29	6 24
FREQ OF MAX DIS	500 500	500 1440	500 1410
S/N RATIO DB			
1KHZ SIGNAL	45.0	46.0	47.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.5	1.5	1.7
65 DB INPUT	1.6	1.6	1.7
BATTERY VOLTAGE	1.38	1.37	1.37









RCI H DIR OE  
 MODEL:PSSD TONE:S TUBING:1 1/8 BATTERY:RM13

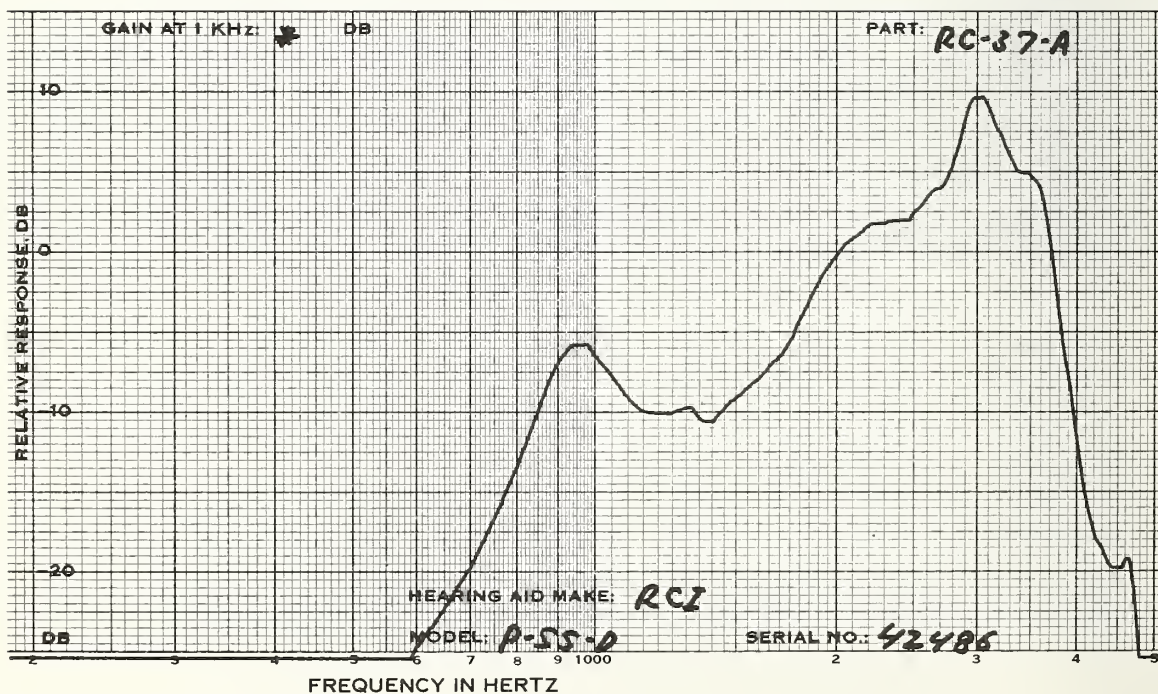
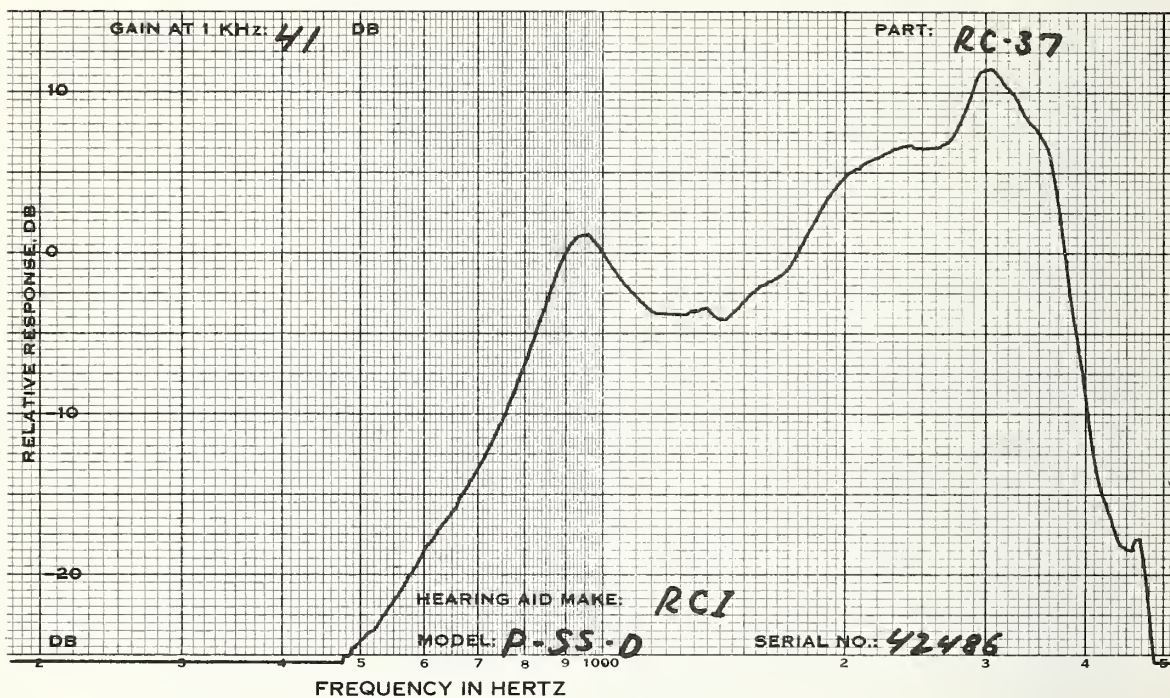
CODE	RC-037	RC-038	RC-039
SERIAL #	42486	42493	42506
DATE		APR 10, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

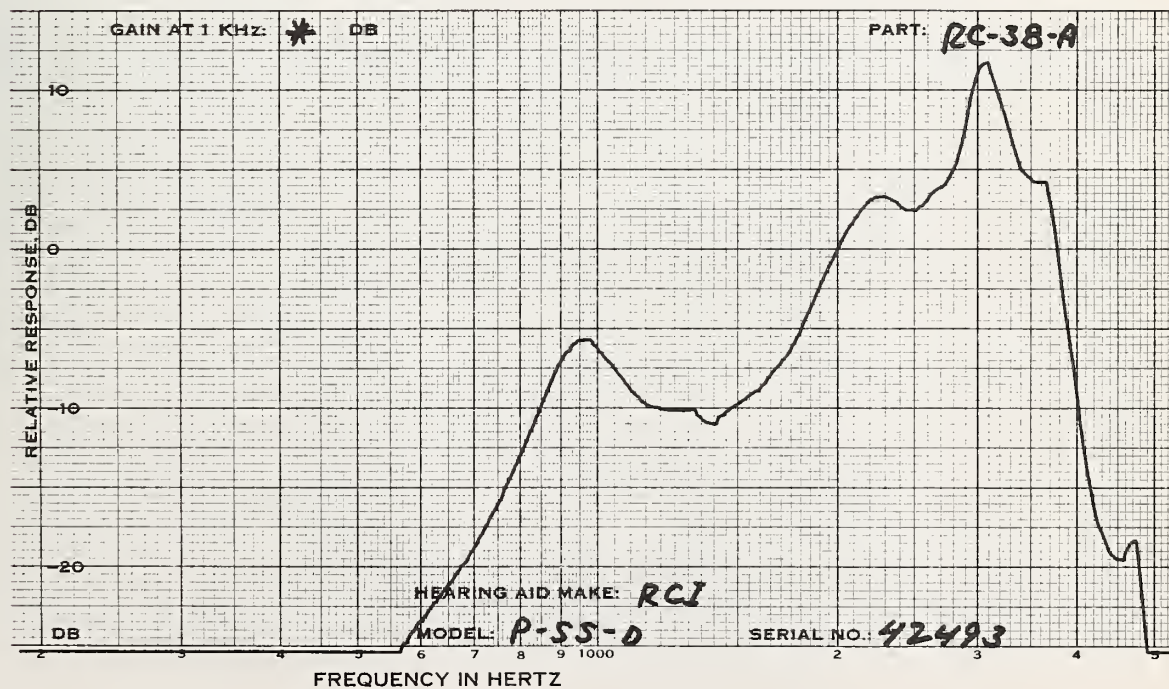
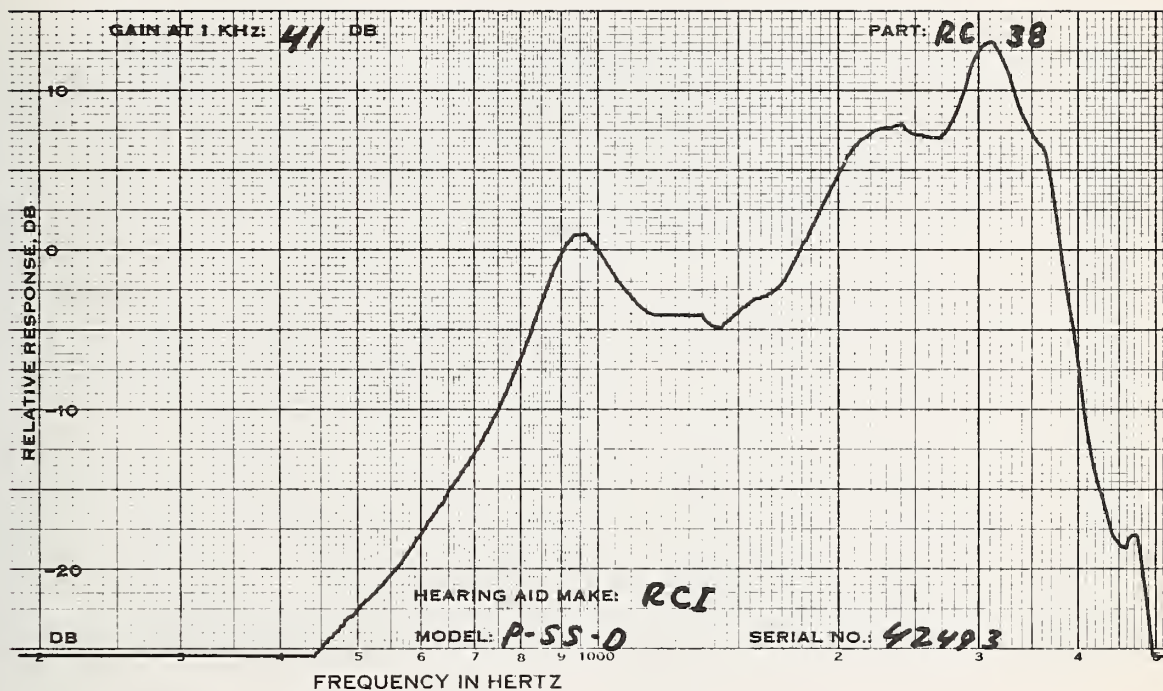
1KHZ GAIN DB	43.5	41.0	42.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.0	76.5	75.0
OUTPUT LEVEL DB	113.0	113.5	113.0

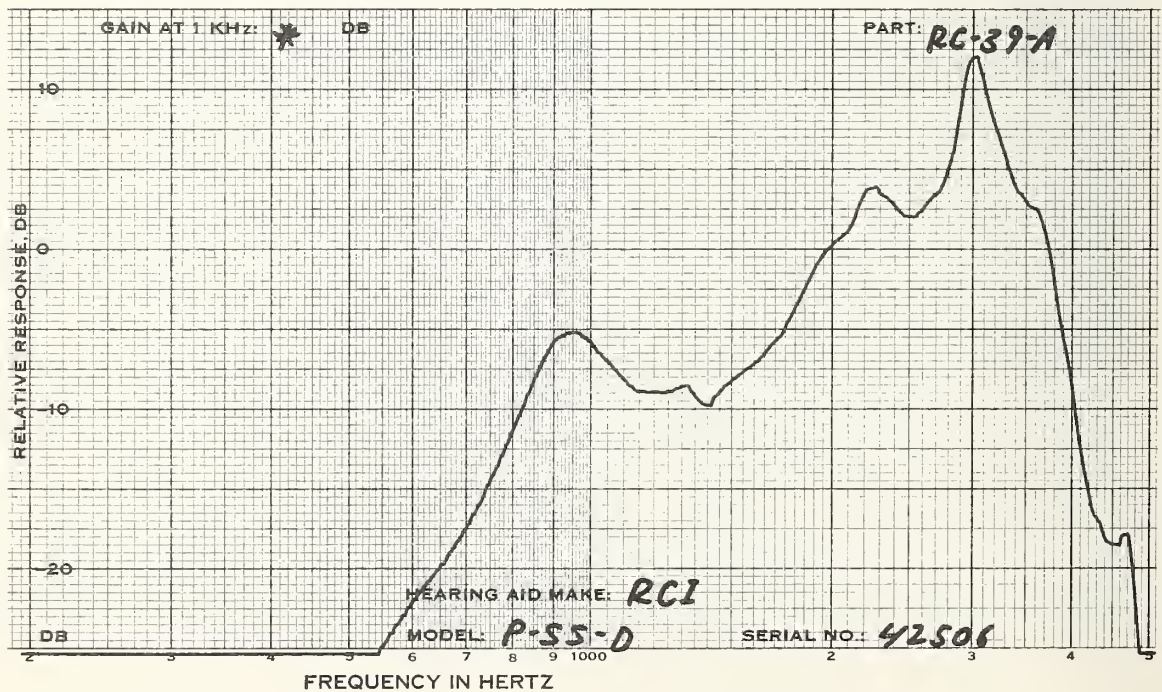
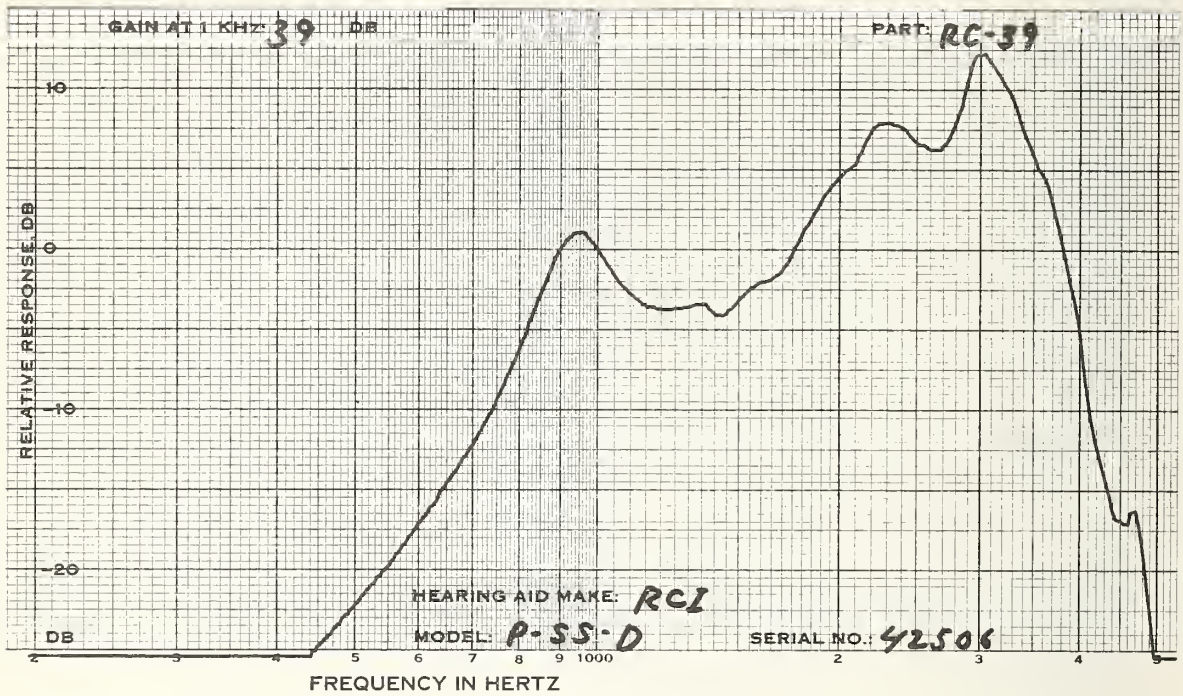
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	41.0	41.0(FULL)	39.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
1000 HZ %	0 1	1 1	1 1
1500 HZ %	2 41	3 42	2 21
2000 HZ %	0 5	0 8	0 4
MAX DIST %	2 44	3 42	3 28
FREQ OF MAX DIS	1480 1540	1500 1500	1470 1820
S/N RATIO DB			
1KHZ SIGNAL	45.0	45.0	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.5	.5	.5
65 DB INPUT	.5	.5	.5
BATTERY VOLTAGE	1.35	1.35	1.35
S/N 2KHZ	50.0	49.5	47.5









SIEMENS  
 MODEL:20T-MP TONE:NONE TUBING:1 1/8 BATTERY:675

OE

CODE	SI-118	SI-119	SI-120
SERIAL #	775	283	1020
DATE		APR 16, 1974	

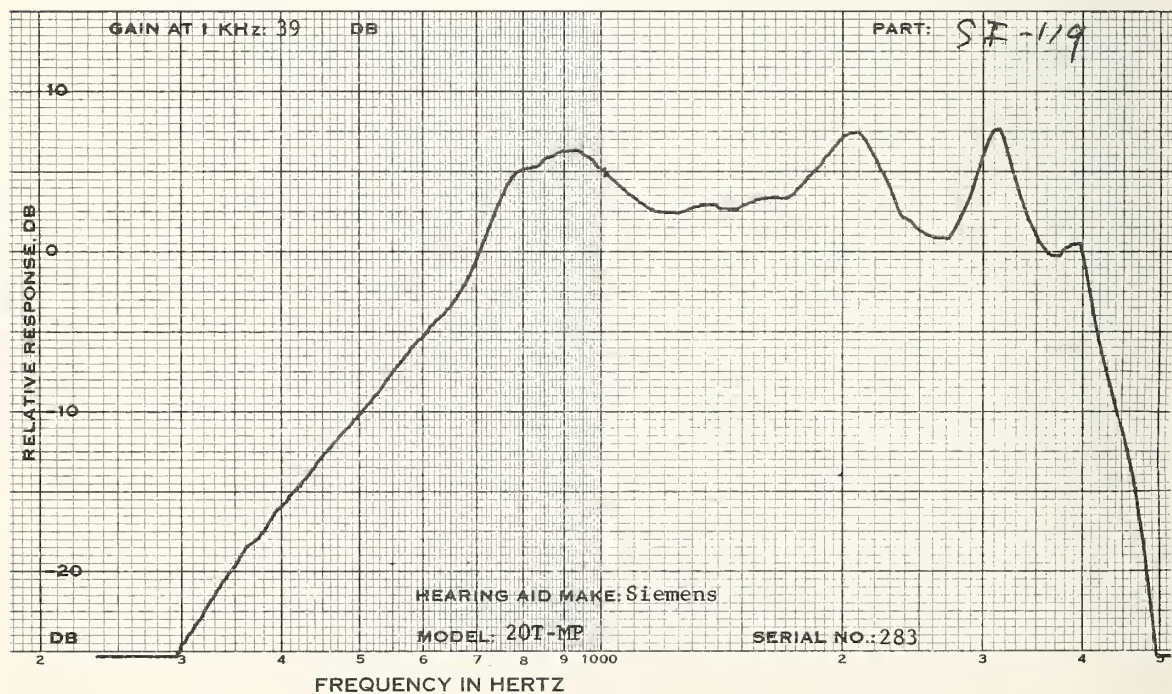
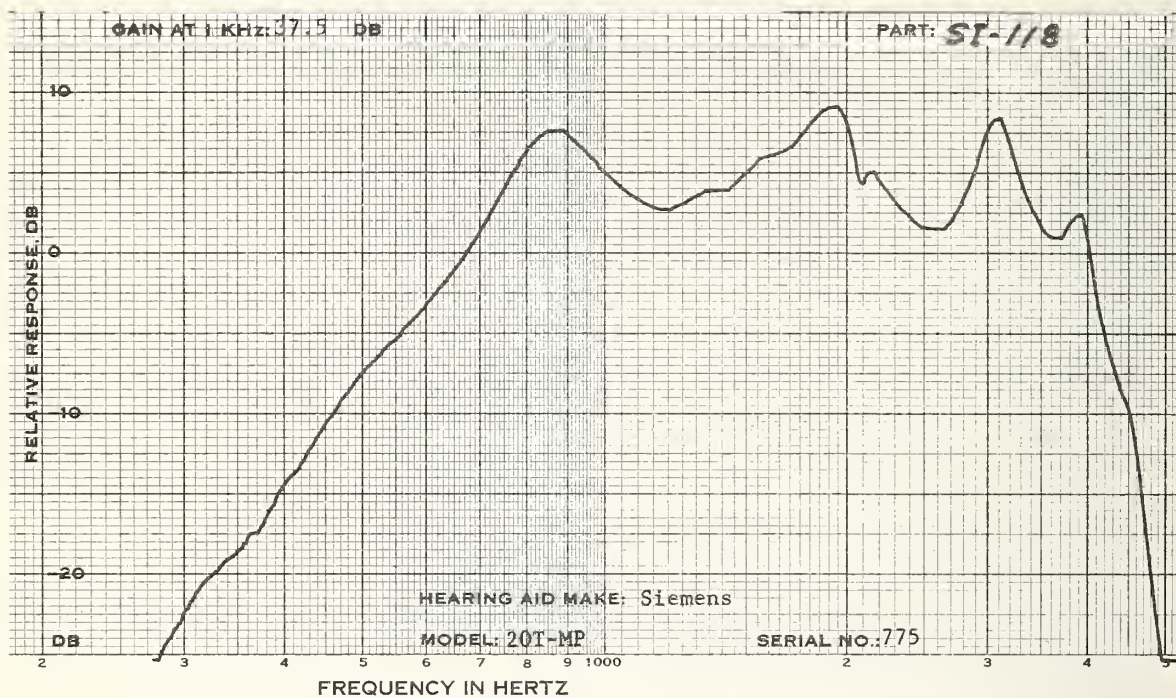
MEASUREMENTS WITH  
 FULL VOL CONTROL

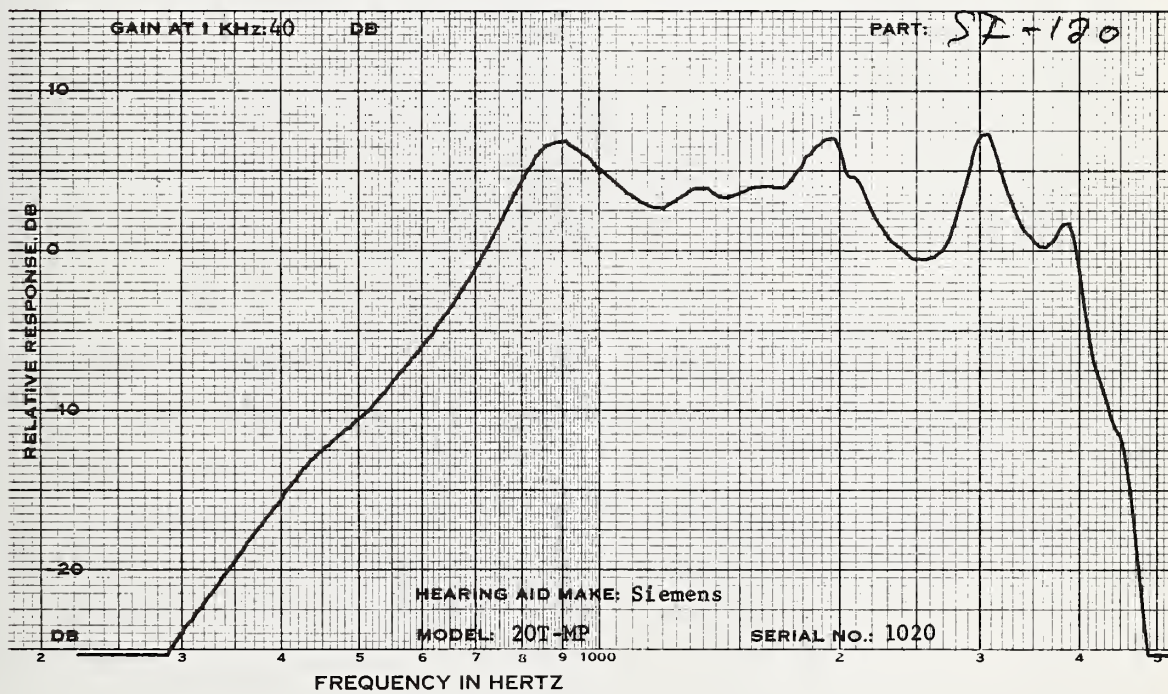
1KHZ GAIN DB	37.5	39.0	40.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	89.0	88.0	89.0
OUTPUT LEVEL DB	114.0	114.0	114.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	37.5(FULL)	39.0(FULL)	40.0(FULL)
HARMONIC DIST			
2INPUT LEVEL DB	66.0 76.0	65.5 75.5	65.0 75.0
500 HZ %	4 7	5 9	5 8
700 HZ %	1 2	1 4	1 2
900 HZ %	1 3	0 3	1 4
MAX DIST %	5 31	7 41	6 40
FREQ OF MAX DIS	1500 1500	1550 1530	1500 1500
S/N RATIO DB			
1KHZ SIGNAL	49.5	51.0	51.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.5	.5	.5
65 DB INPUT	.5	.5	.5
BATTERY VOLTAGE	1.46	1.47	1.46







SIEMENS  
 MODEL:22E-MP-AGC AGC:FULL ON(CW) TUBING:1 1/8 BATTERY:675

CODE	SI-121	SI-122	SI-123
SERIAL #	25700	27210	34211
DATE		APR 17, 1974	

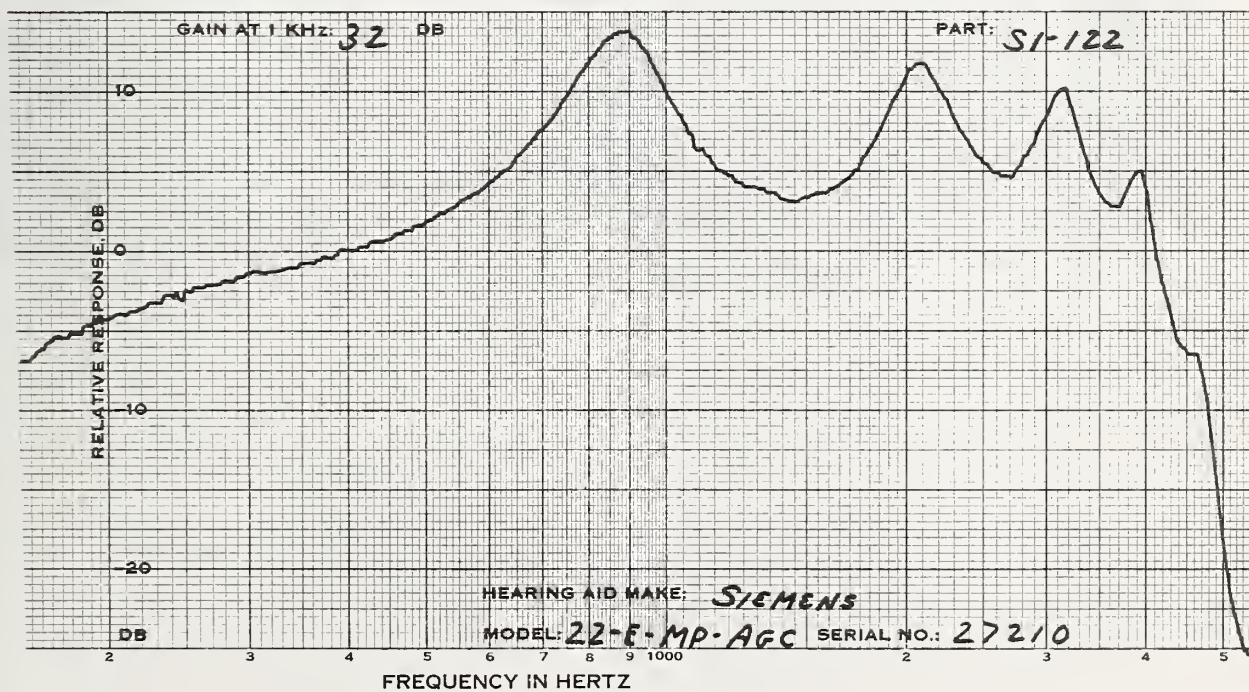
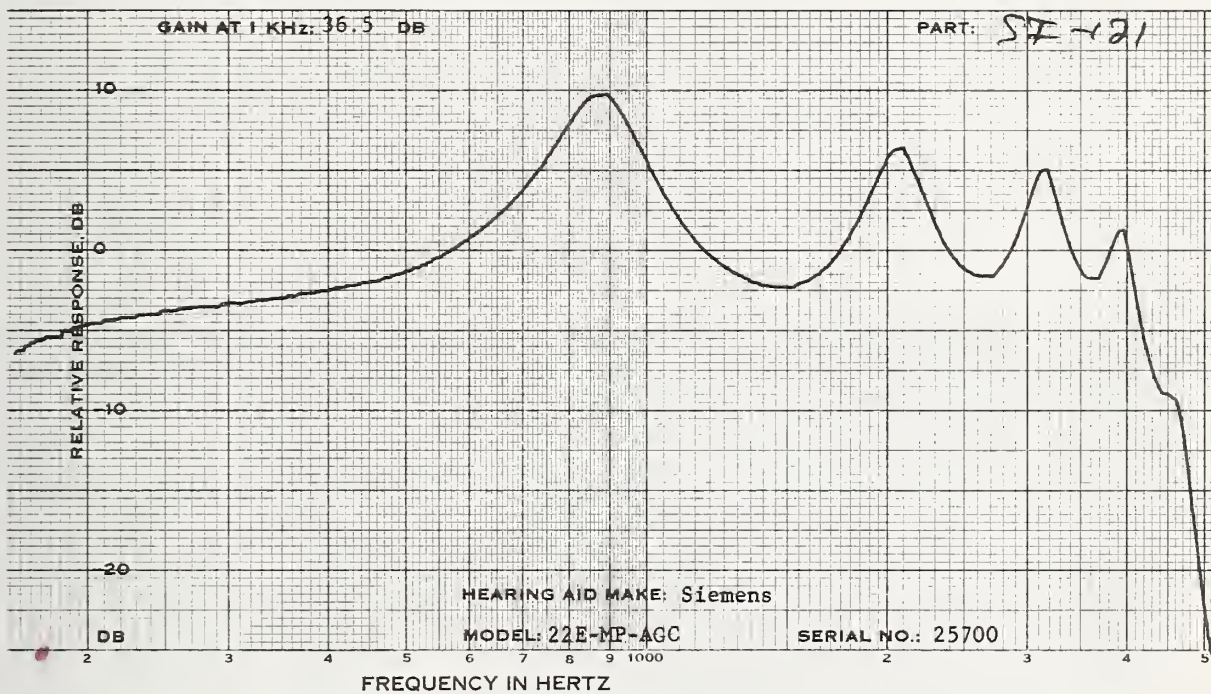
MEASUREMENTS WITH  
 FULL VOL CONTROL

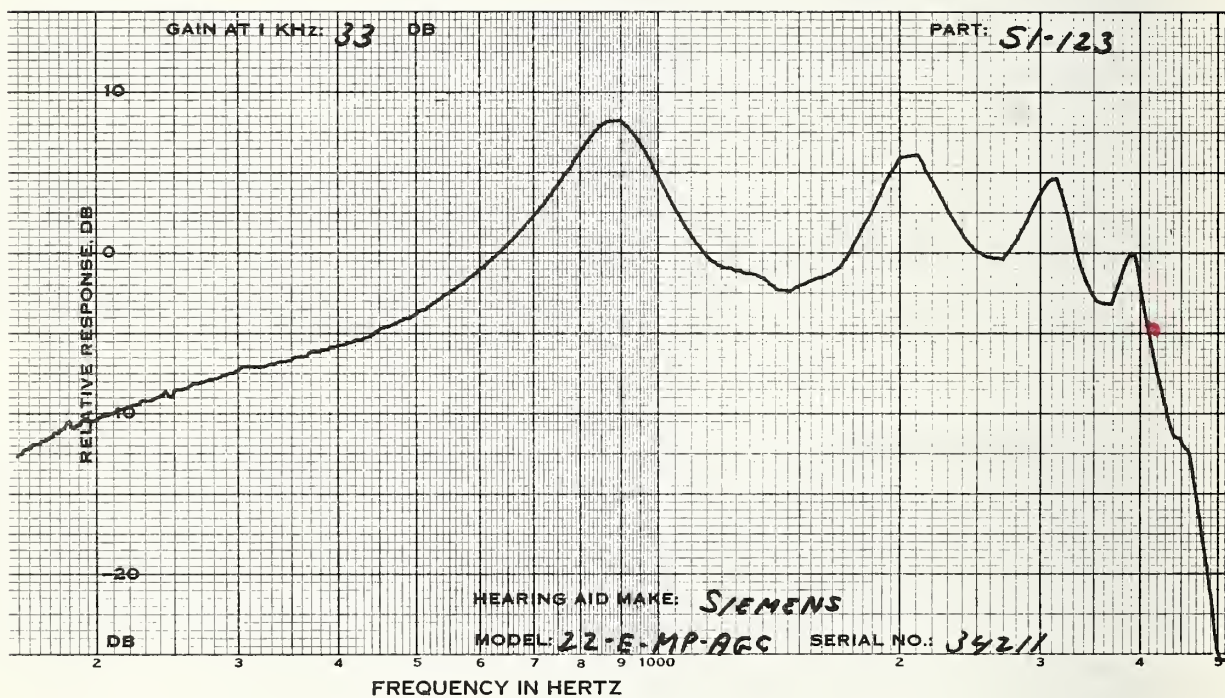
1KHZ GAIN DB	36.5	34.5	37.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	90.0	80.0	83.0
OUTPUT LEVEL DB	106.5	101.0	103.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	36.5(FULL)	32.0	33.0
HARMONIC DIST			
@INPUT LEVEL DB	63.0 73.0	60.0 70.0	60.0 70.0
500 HZ %	8 14	7 9	5 8
700 HZ %	5 11	2 5	2 8
900 HZ %	2 4	1 2	1 2
MAX DIST %	15 27	7 13	5 17
FREQ OF MAX DIS	1300 1300	500 1290	500 1290
S/N RATIO DB			
1KHZ SIGNAL	31.5	38.0	38.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.7	.6	.6
65 DB INPUT	.7	.6	.6
BATTERY VOLTAGE	1.44	1.46	1.45







SIEMENS  
 MODEL:24-SL VC:FULL OFF TUBING:1 1/8 BATTERY:675

OE

CODE	SI-124	SI-125	SI-126
SERIAL #	61025	62200	63734
DATE		APR 17, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

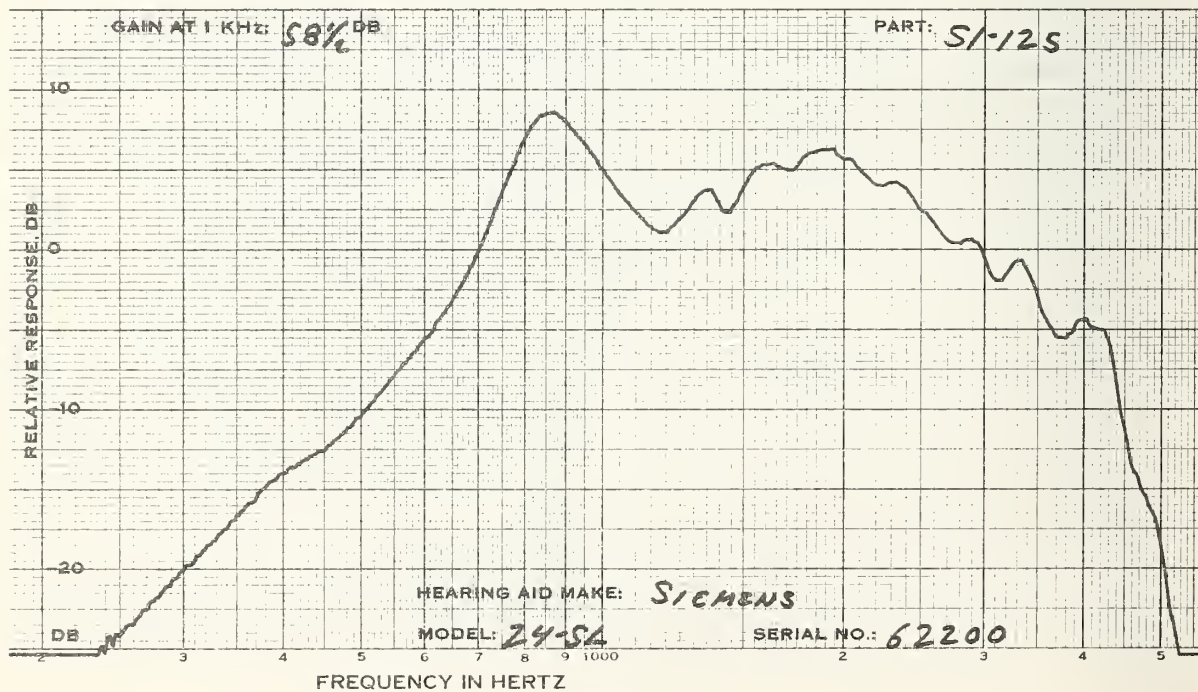
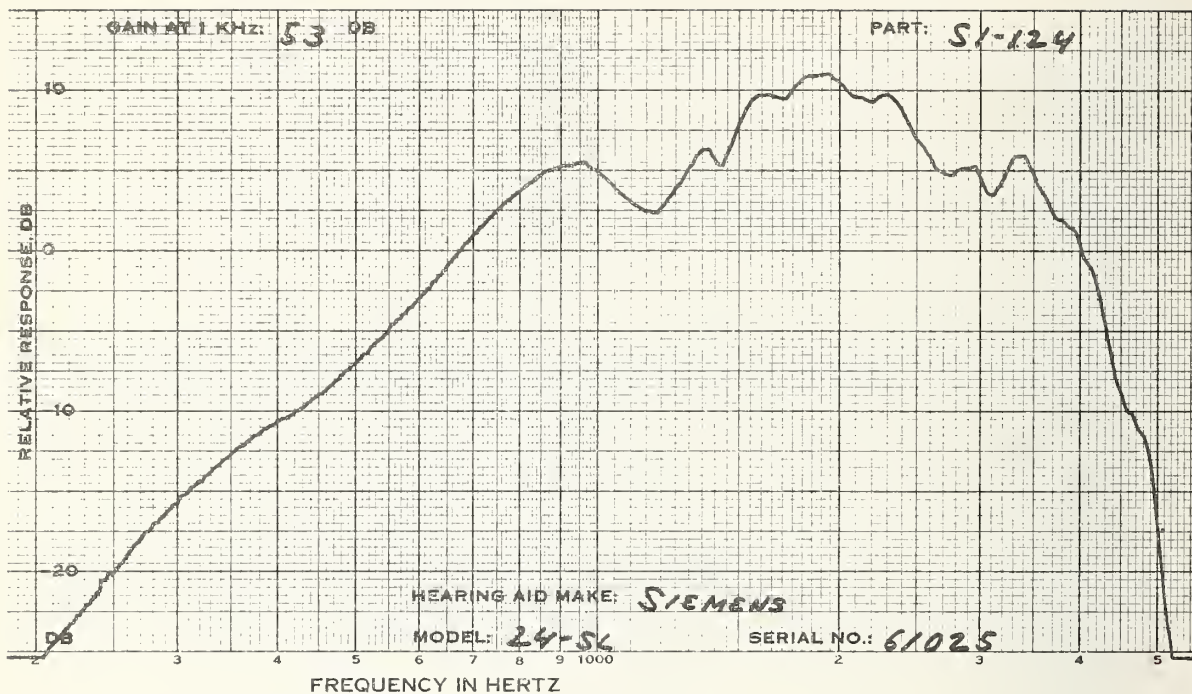
1KHZ GAIN DB	66.0	70.0	70.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	72.0	73.0	75.0
OUTPUT LEVEL DB	125.0	129.0	129.0

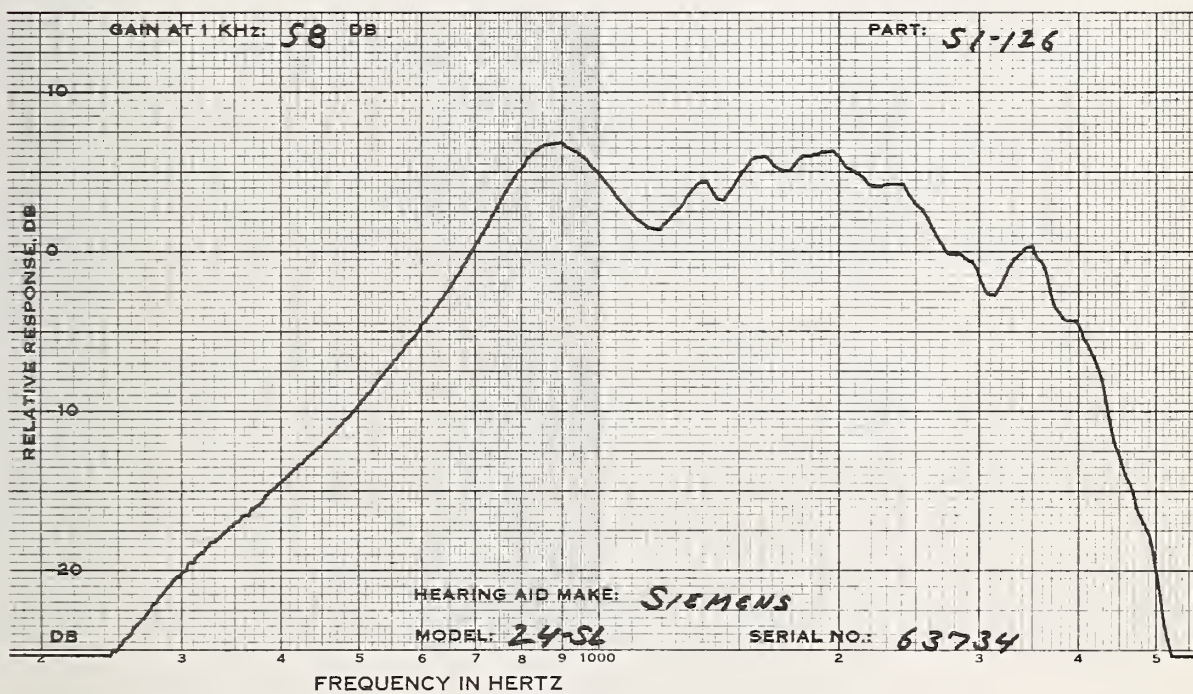
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	53.0	58.5	58.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	9 23	6 11	6 14
700 HZ %	3 11	2 5	3 5
900 HZ %	3 10	1 6	1 5
MAX DIST %	9 23	6 14	6 14
FREQ OF MAX DIS	500 500	500 1100	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.5	43.5	45.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.1	2.1	2.1
65 DB INPUT	2.9	3.1	2.8
BATTERY VOLTAGE	1.36	1.37	1.37

THE GAIN ON SI-124, SERIAL # 61025, HAD TO BE REDUCED BEFORE  
 BEGINNING THE TEST TO PREVENT FEEDBACK.







SIEMENS HP OE  
 MODEL:26E-HT-CPC CPC:OFF(CW) TUBING:1 1/8 BATTERY:675

CODE	SI-127	SI-128	SI-129
SERIAL #	25730	30752	32825
DATE		APR 19, 1974	

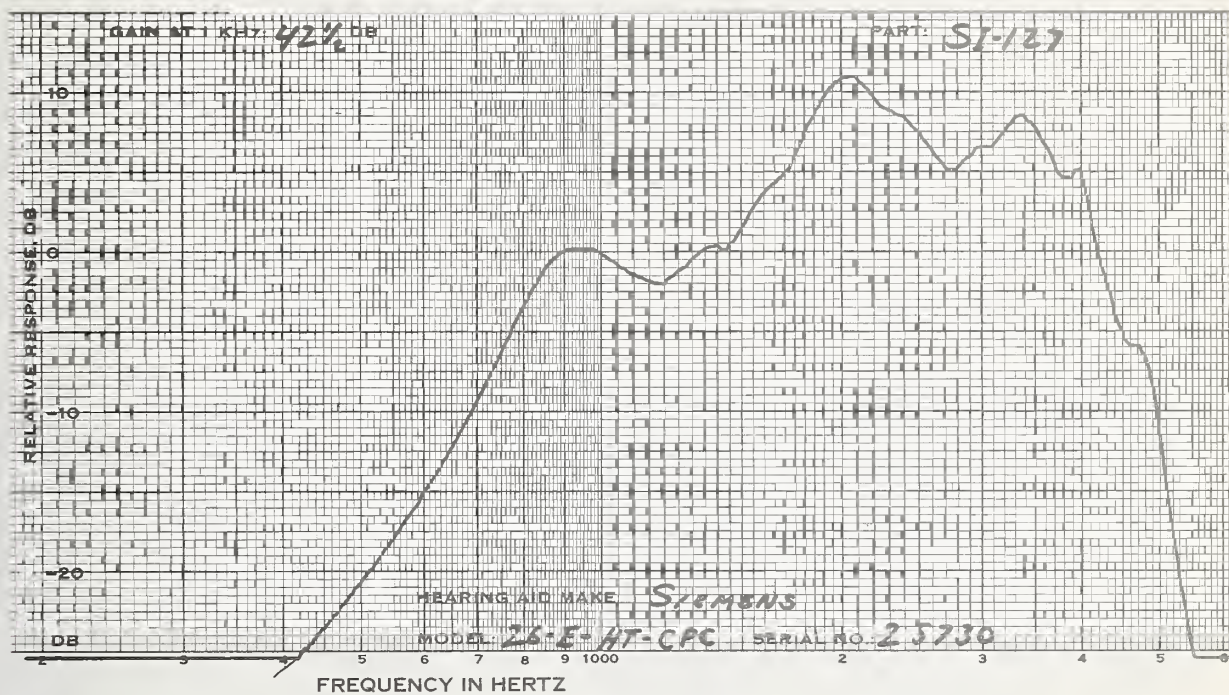
MEASUREMENTS WITH  
 FULL VOL CONTROL

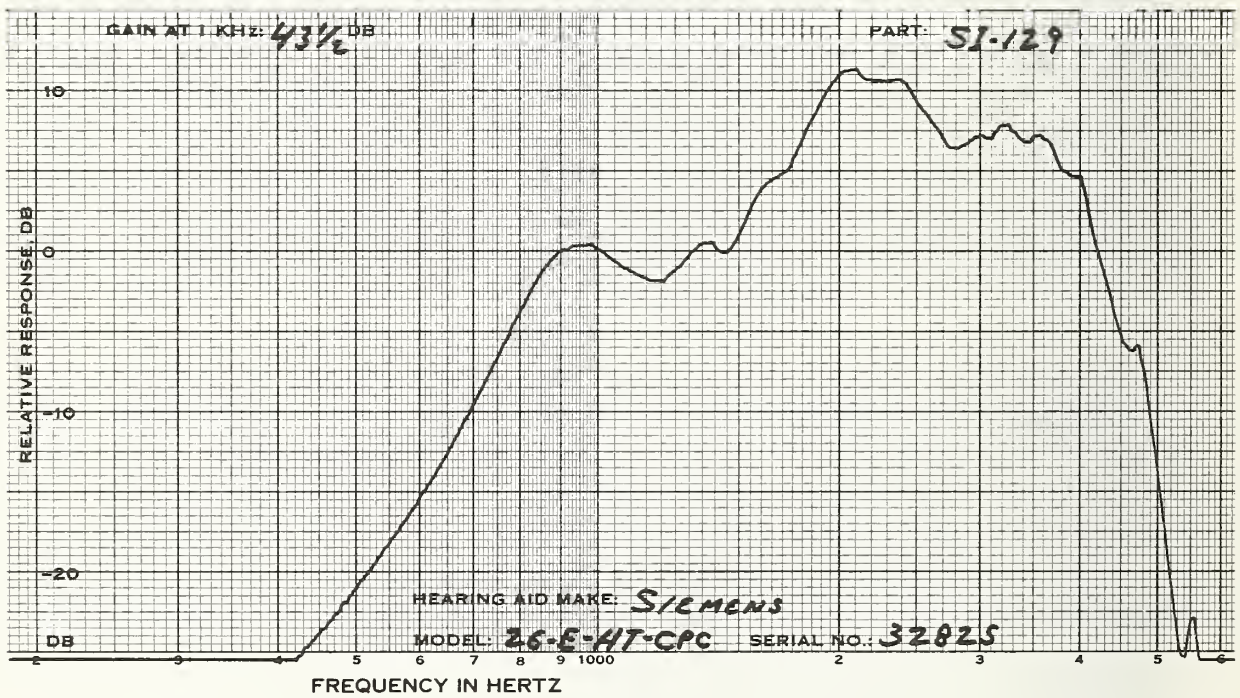
1KHZ GAIN DB	52.5	54.0	51.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	69.0	68.0	72.0
OUTPUT LEVEL DB	118.0	119.5	119.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	42.5	43.5	43.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
1000 HZ %	4 8	3 6	3 5
1500 HZ %	3 6	2 4	2 3
2000 HZ %	4 15	3 13	4 16
MAX DIST %	7 15	4 18	4 18
FREQ OF MAX DIS	1060 2000	1940 1930	2000 1980
S/N RATIO DB			
1KHZ SIGNAL	39.0	39.5	38.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.7	1.7	1.9
65 DB INPUT	1.7	1.7	1.9
BATTERY VOLTAGE	1.36	1.38	1.38
S/N 2KHZ	50.0	50.0	49.5







SIEMENS  
 MODEL:28E-MP-HF TONE:NORM(CW) TUBING:1 1/8 BATTERY:675

CODE	SI-130	SI-131	SI-132
SERIAL #	12527	15333	16310
DATE		APR 22, 1974	

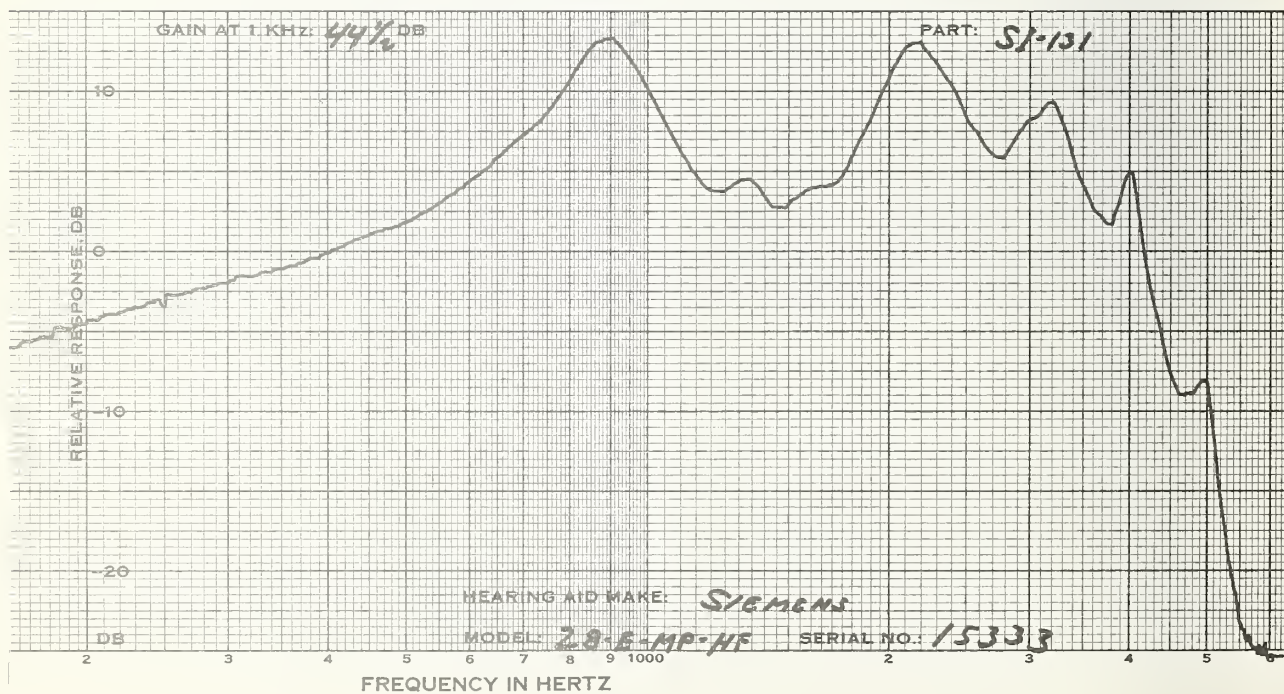
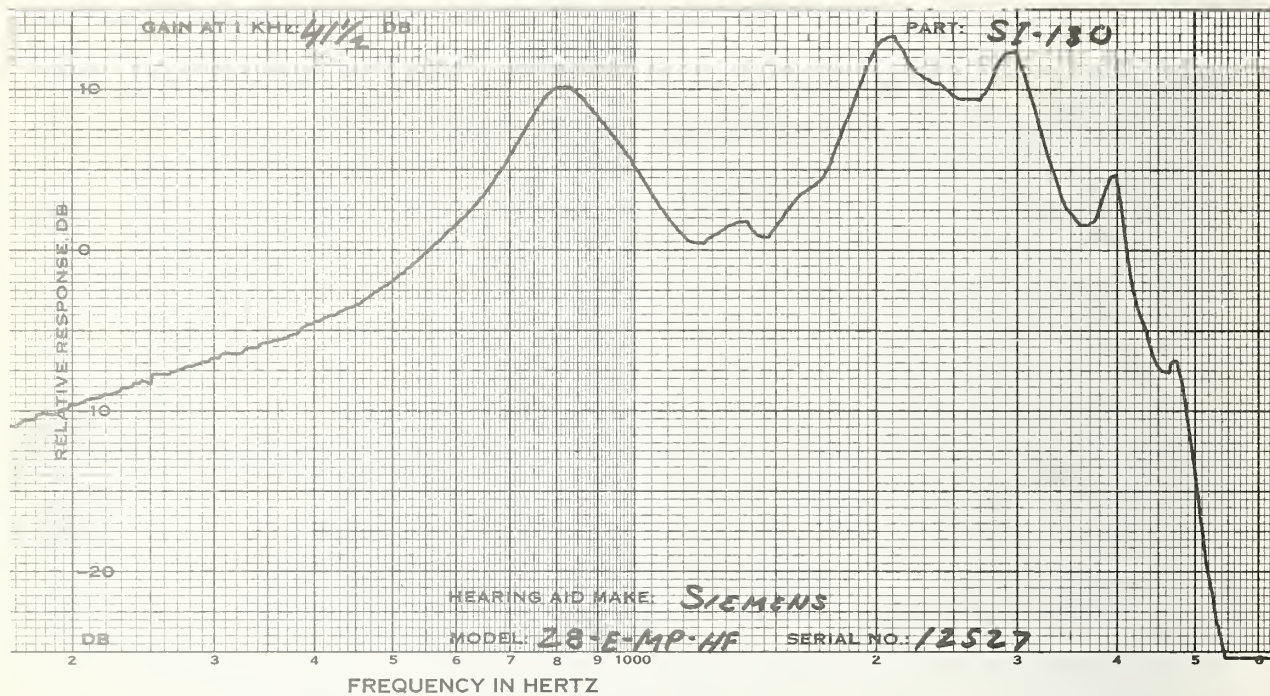
MEASUREMENTS WITH  
 FULL VOL CONTROL

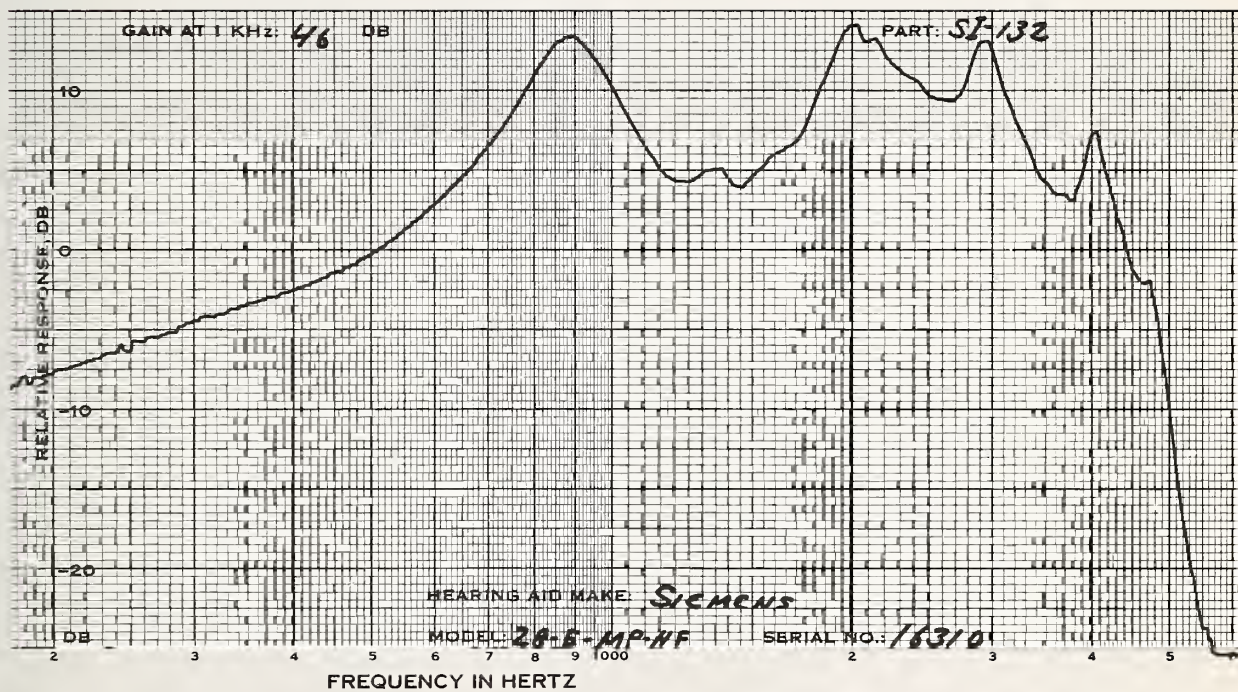
1KHZ GAIN DB	41.5	44.5	46.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.5	79.0	79.0
OUTPUT LEVEL DB	114.5	115.0	116.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	41.5(FULL)	44.5(FULL)	46.0(FULL)
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.5 70.5	60.5 70.5
500 HZ %	4 16	4 11	5 15
700 HZ %	1 4	1 2	1 5
900 HZ %	1 7	0 1	0 5
MAX DIST %	6 37	8 32	5 19
FREQ OF MAX DIS	1470 1500	1550 1550	1000 1480
S/N RATIO DB			
1KHZ SIGNAL	39.5	40.5	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.7	.7	.8
65 DB INPUT	.7	.7	.8
BATTERY VOLTAGE	1.42	1.40	1.43







SIEMENS DIR OE  
 MODEL:340-SL-PC PC:OFF(CW) TUBING:1 1/8 BATTERY:675

CODE	SI-133	SI-134	SI-135
SERIAL #	2199	2203	2244
DATE		APR 19, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

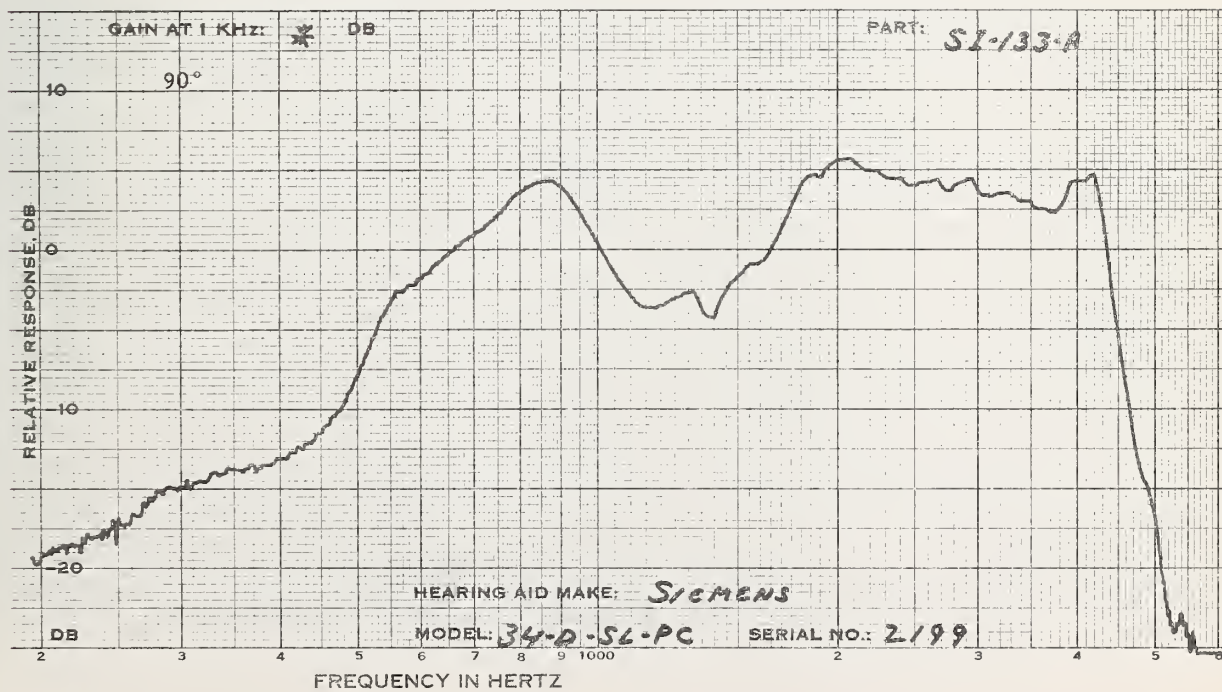
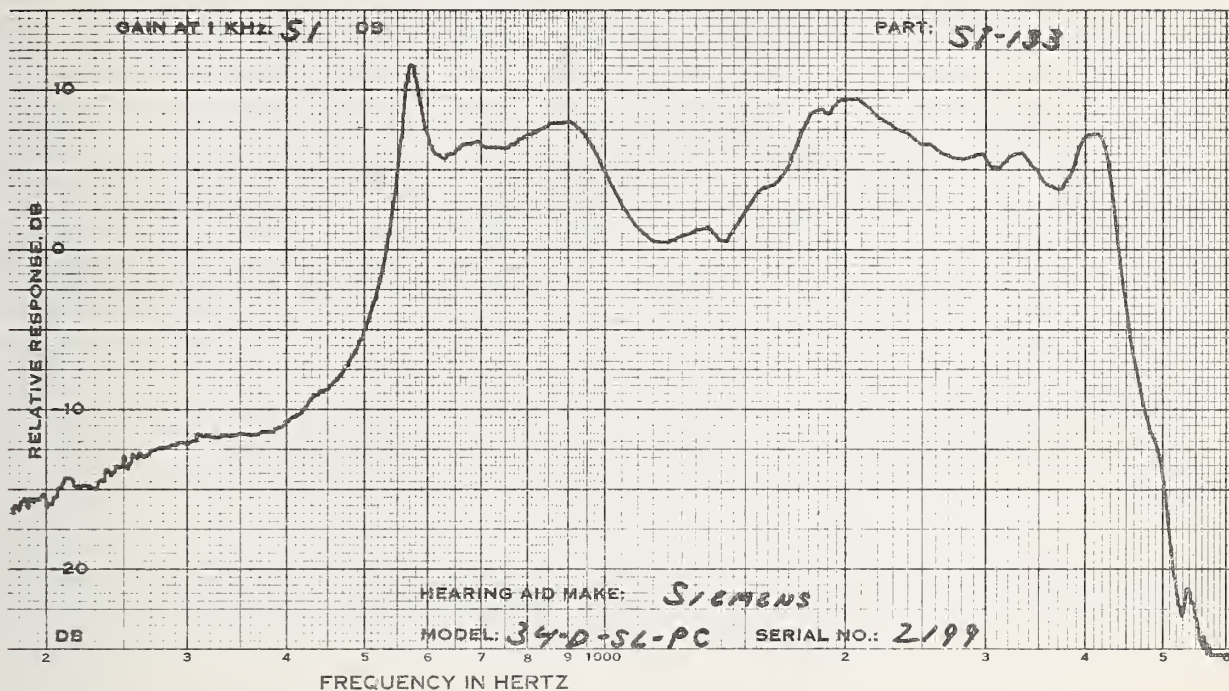
1KHZ GAIN DB	51.0	51.0	51.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	80.0	80.0
OUTPUT LEVEL DB	127.0	126.5	128.0

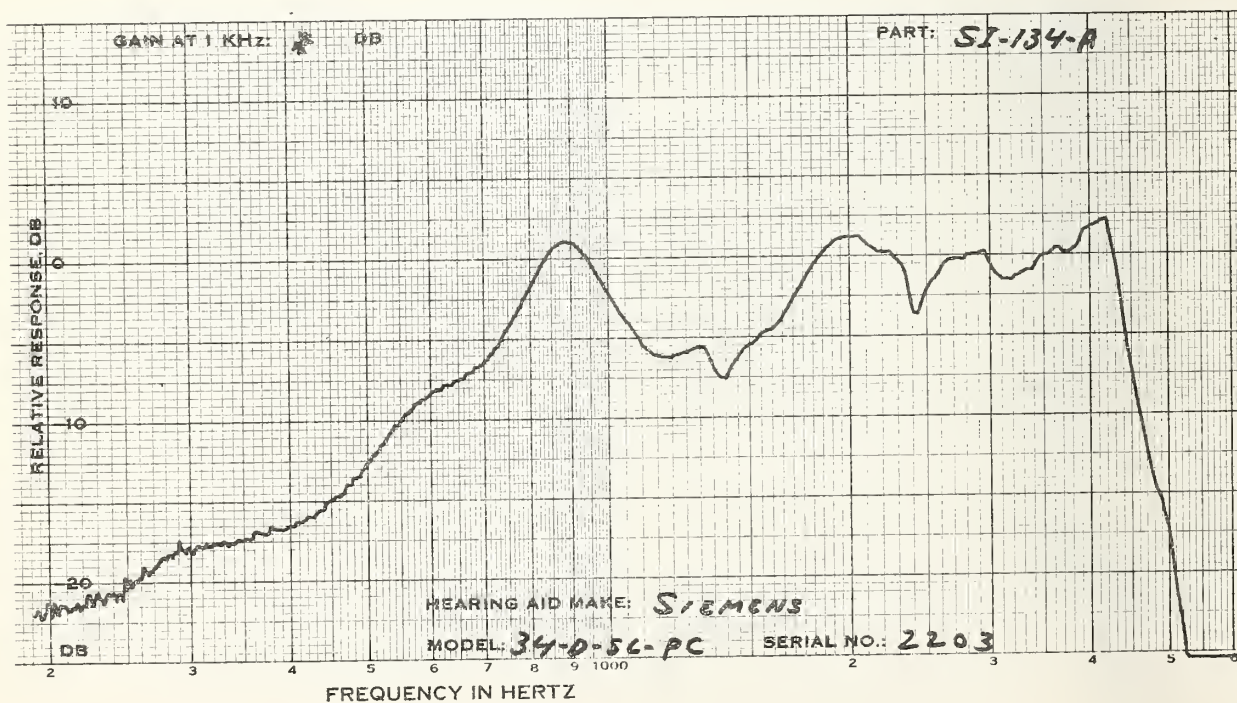
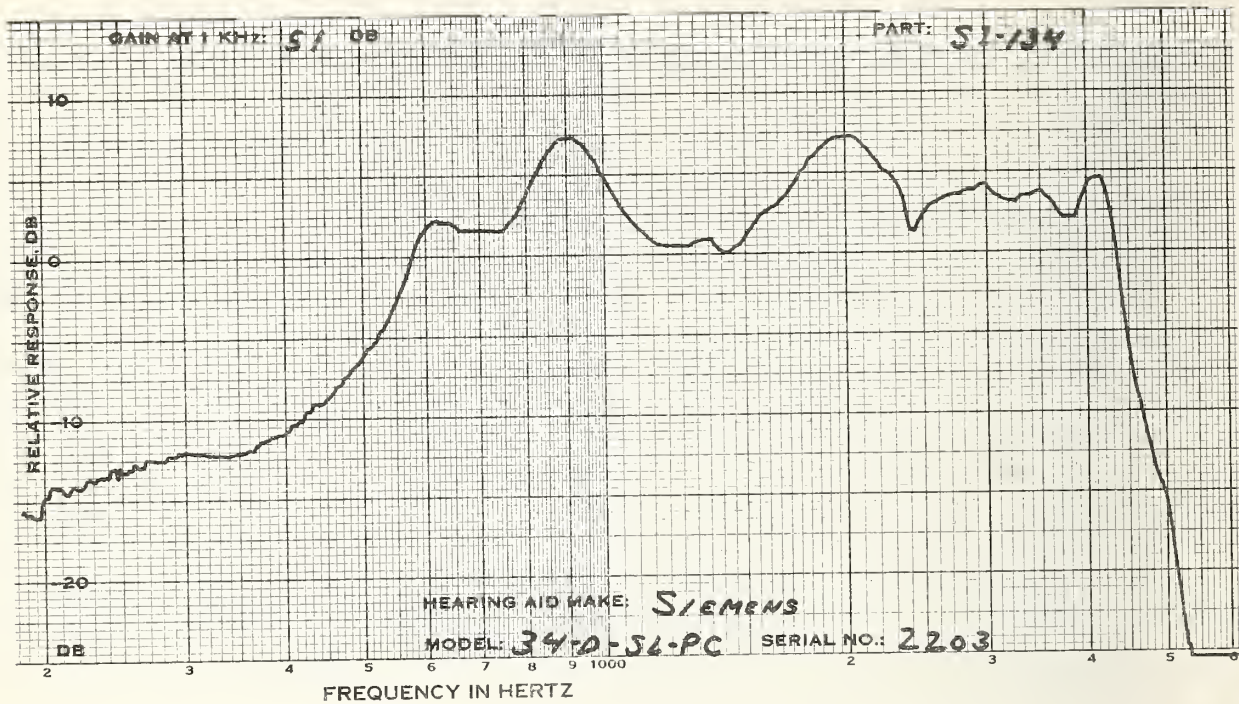
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	51.0(FULL)		51.0(FULL)		51.5(FULL)	
HARMONIC DIST						
@INPUT LEVEL DB	62.0	72.0	61.0	71.0	61.0	71.0
500 HZ %	4	10	4	8	9	12
700 HZ %	3	5	2	3	4	3
900 HZ %	2	3	1	2	2	4
MAX DIST %	8	18	4	8	9	12
FREQ OF MAX DIS	560	560	500	570	500	500
S/N RATIO DB						
1KHZ SIGNAL	34.5		37.0		31.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.2		2.1		2.0	
65 DB INPUT	2.4		2.1		2.3	
BATTERY VOLTAGE	1.36		1.36		1.36	

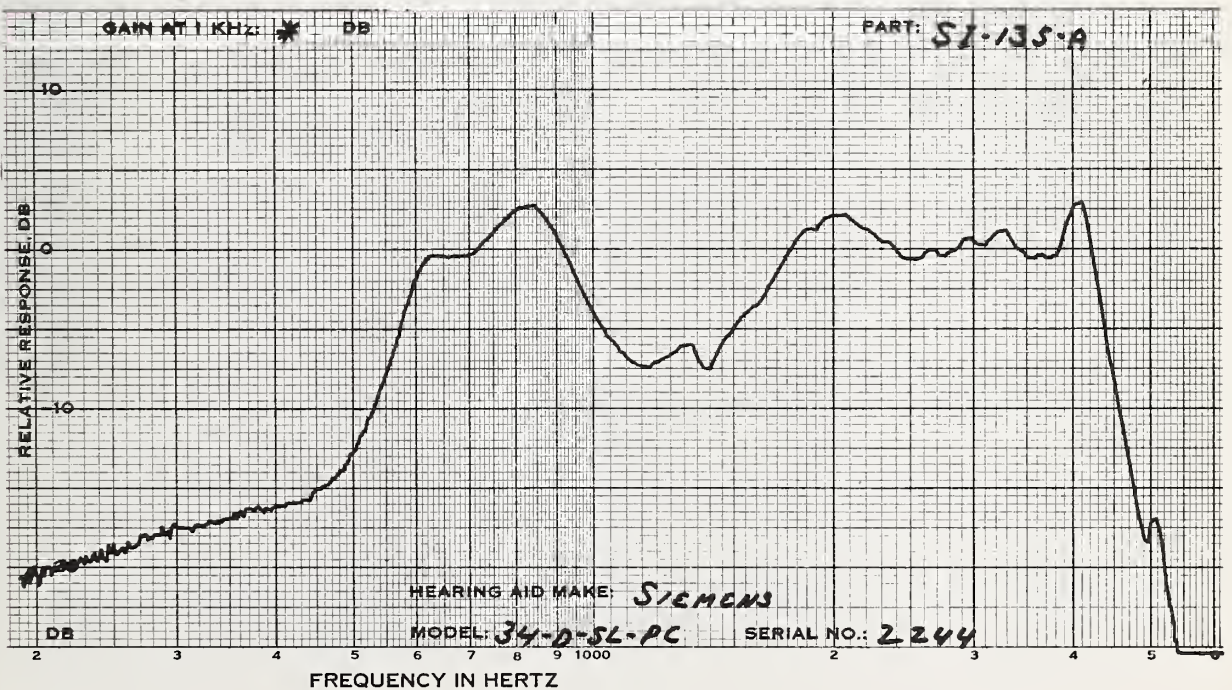
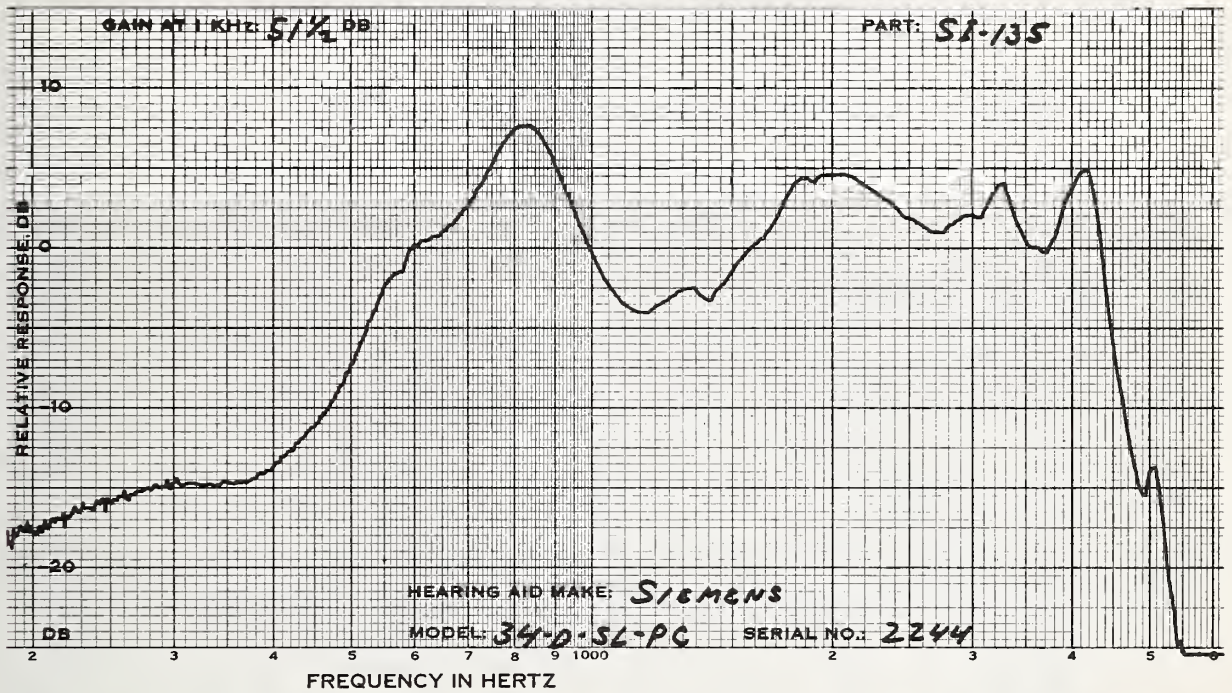
THE VOLUME CONTROL HAD TO BE TURNED DOWN SLIGHTLY  
 BEFORE BEGINNING THE TEST TO AVOID FEEDBACK ON SI-133  
 AND SI-134.













SIEMENS HP OE  
 MODEL:H360 TONE:NONE TUBING:1 1/8 BATTERY:RM13

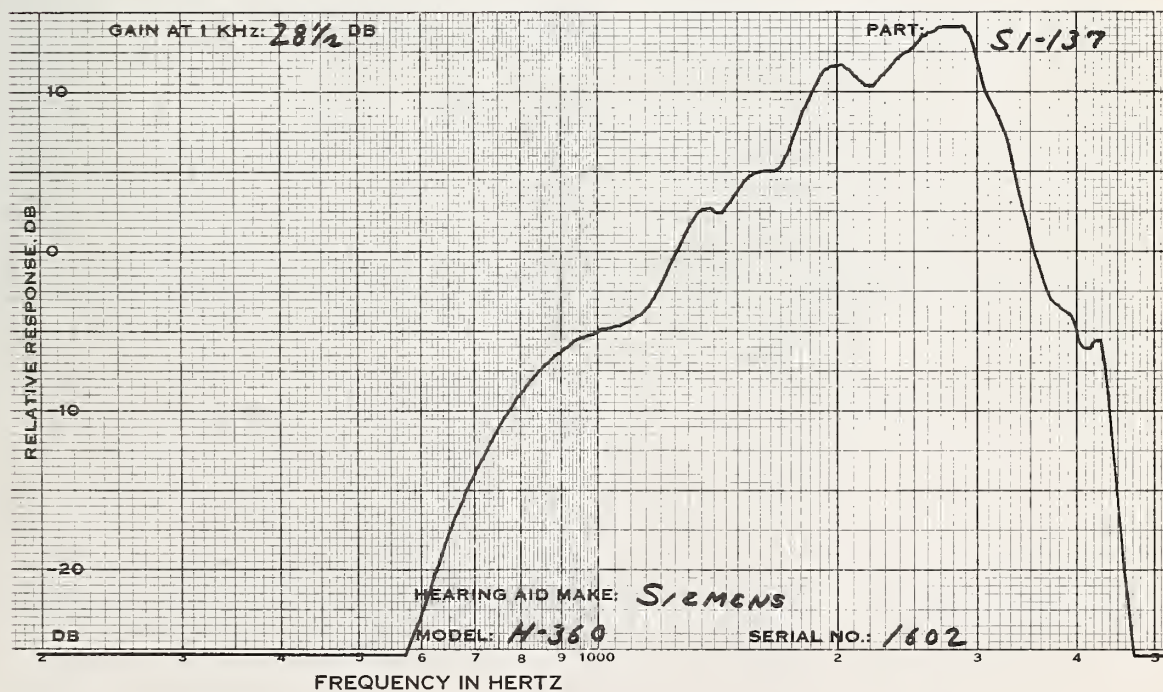
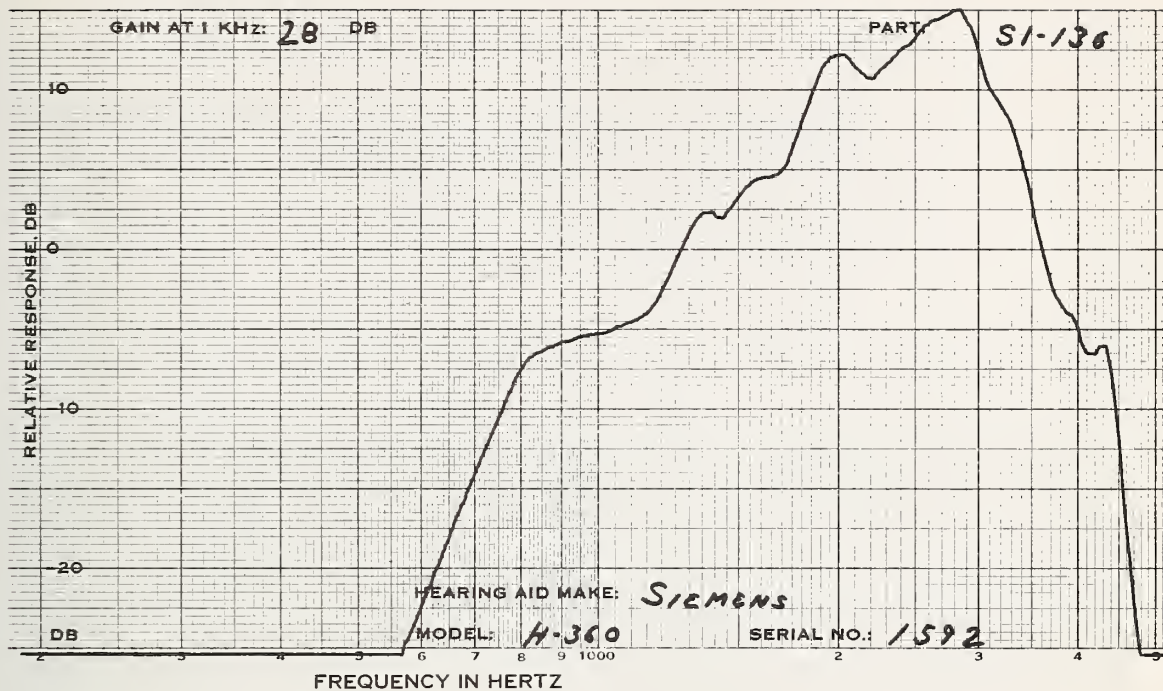
CODE	SI-136	SI-137	SI-138
SERIAL #	1592	1602	1661
DATE		APR 17, 1974	

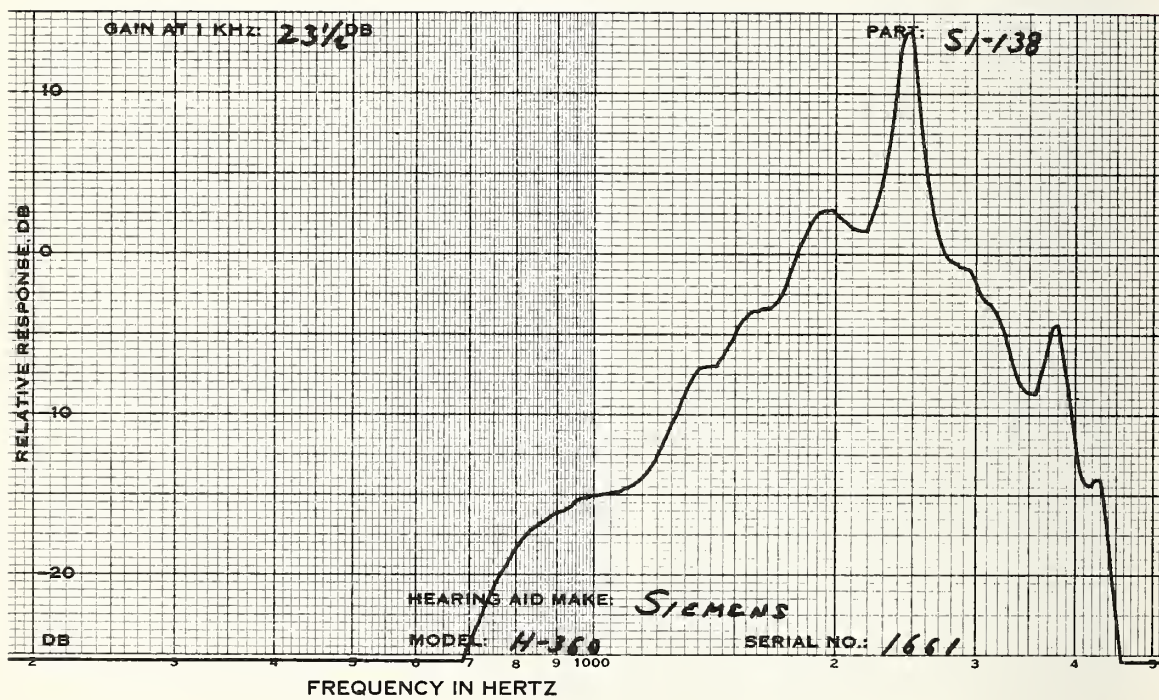
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	31.0	30.5	24.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.0	77.0	75.5
OUTPUT LEVEL DB	111.0	111.0	110.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	28.0	28.5	23.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
1000 HZ %	5 5	5 5	4 5
1500 HZ %	2 5	2 9	1 5
2000 HZ %	0 2	0 1	1 1
MAX DIST %	8 7	5 9	4 51
FREQ OF MAX DIS	1070 1280	1270 1500	1000 1220
S/N RATIO DB			
1KHZ SIGNAL	36.0	37.0	29.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.4	.4	.4
65 DB INPUT	.4	.4	.4
BATTERY VOLTAGE	1.39	1.40	1.40
S/N 2KHZ	53.0	53.0	47.0







SONOTONE BI CR EG  
 MODEL:35AX TONE:NONE TUBING:1 1/2 BATTERY:RM675

CODE	SO-256	SO-257	SO-258
SERIAL #	57243	57264	57332
DATE		MAY 8, 1974	

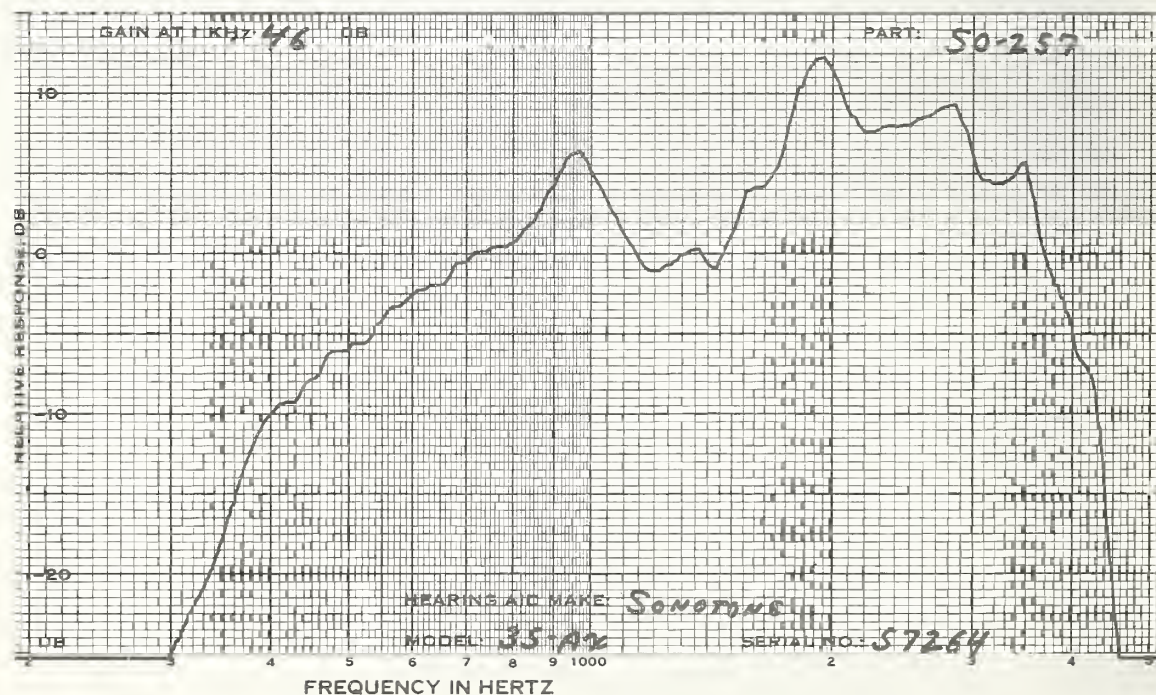
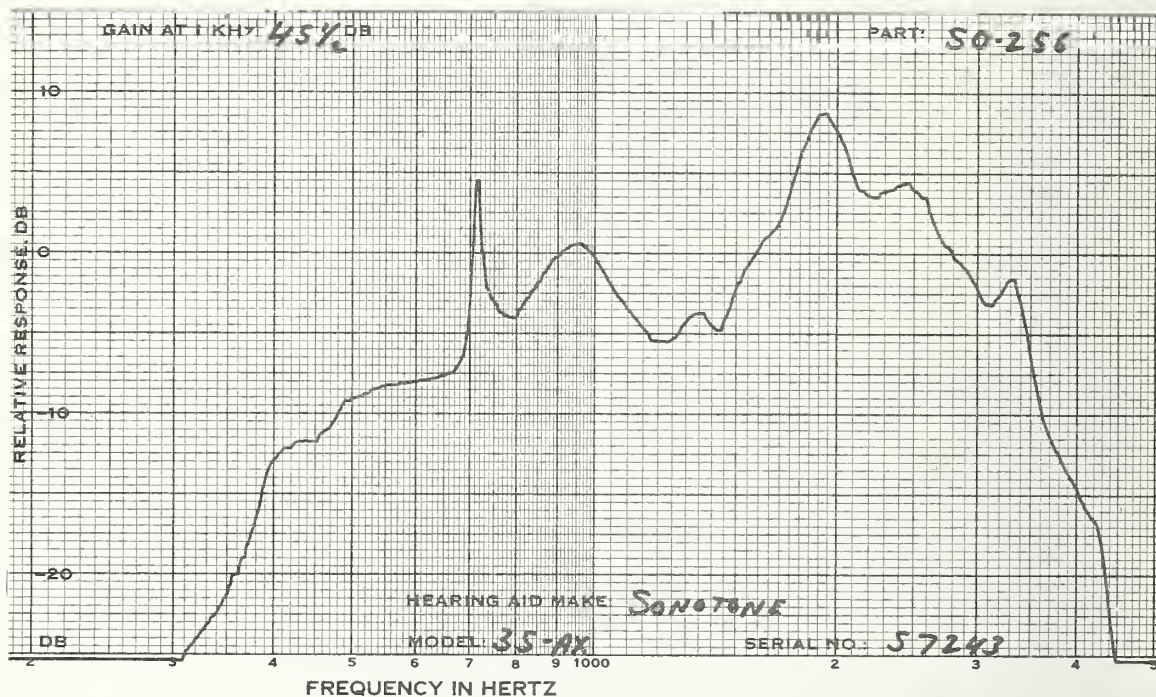
MEASUREMENTS WITH  
 FULL VOL CONTROL

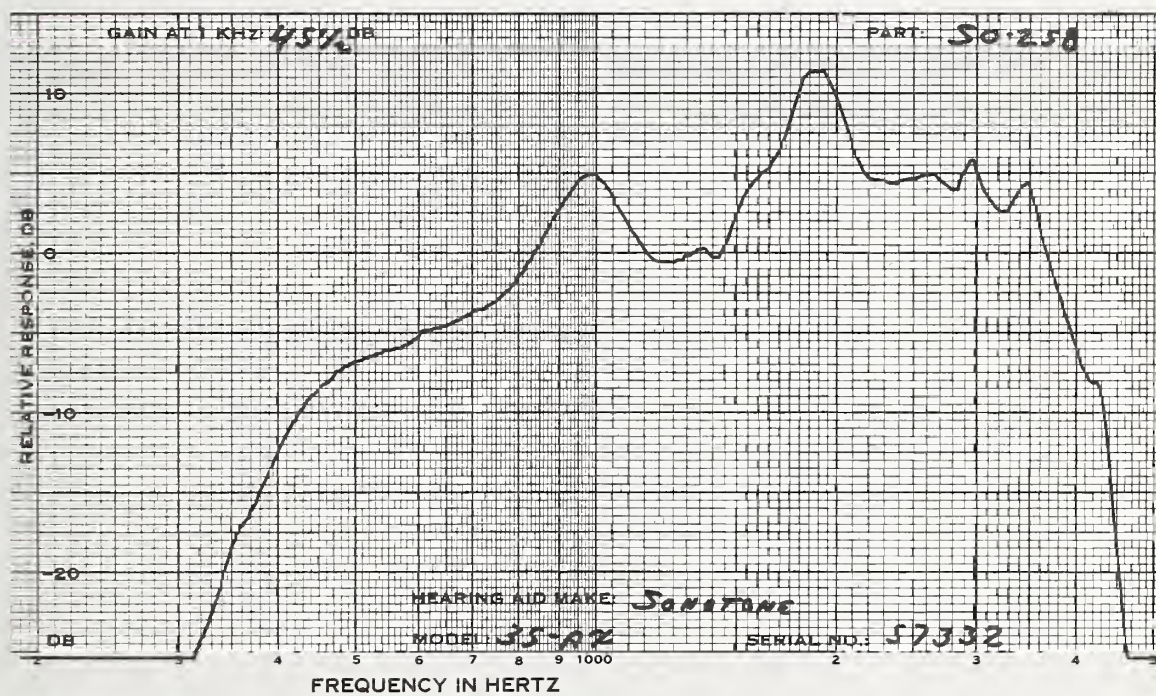
1KHZ GAIN DB	45.5	46.0	45.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.0	78.0	78.5
OUTPUT LEVEL DB	120.0	121.5	121.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	45.5(FULL)	46.0(FULL)	45.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	63.0 73.0	63.5 73.5	62.0 72.0
500 HZ %	7 14	12 24	8 19
700 HZ %	10 26	6 13	3 10
900 HZ %	3 9	4 10	3 7
MAX DIST %	10 26	12 24	8 19
FREQ OF MAX DIS	1290 700	1340 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	46.5	47.5	49.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	1.0	.9
65 DB INPUT	.9	1.0	.9
BATTERY VOLTAGE	1.39	1.42	1.40

FOR TESTING PURPOSES, THE TEMPLE ON THE SIDE OPPOSITE FROM  
 THE RECEIVER WAS DISCONNECTED.







SONOTONE CROS EG  
 MODEL:35AZ TONE:NONE TUBING:1 1/2 BATTERY:S76

CODE	SO-259	SO-260	SO-261
SERIAL #		SEE BELOW	
DATE		MAY 9, 1974	

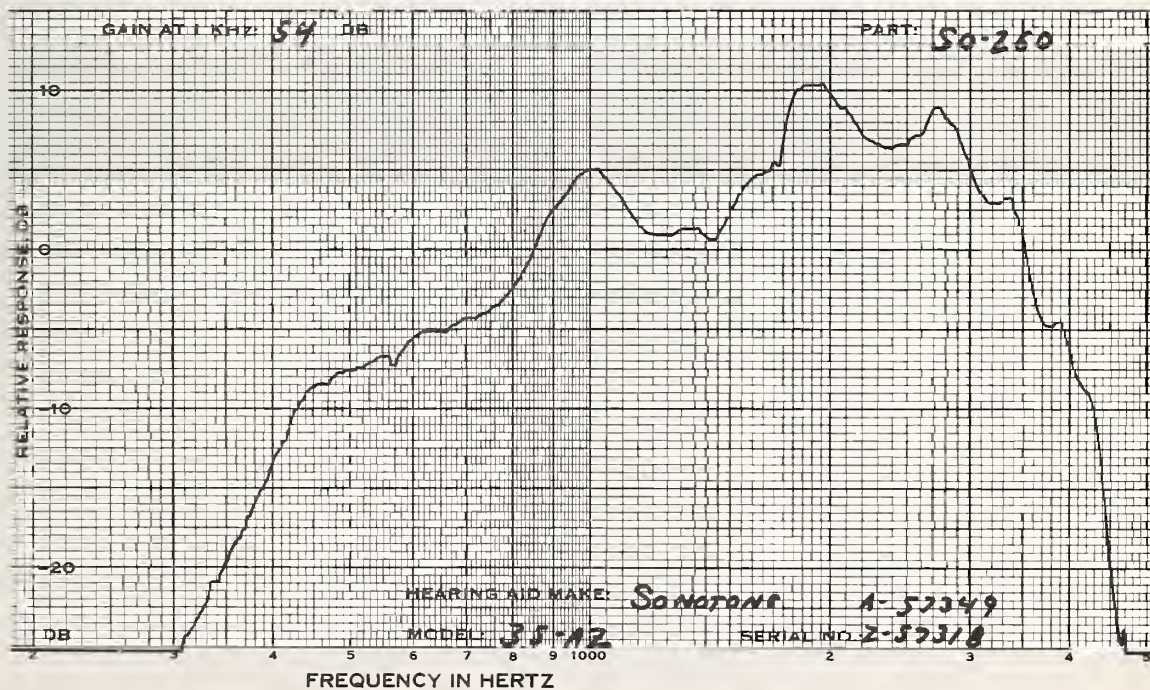
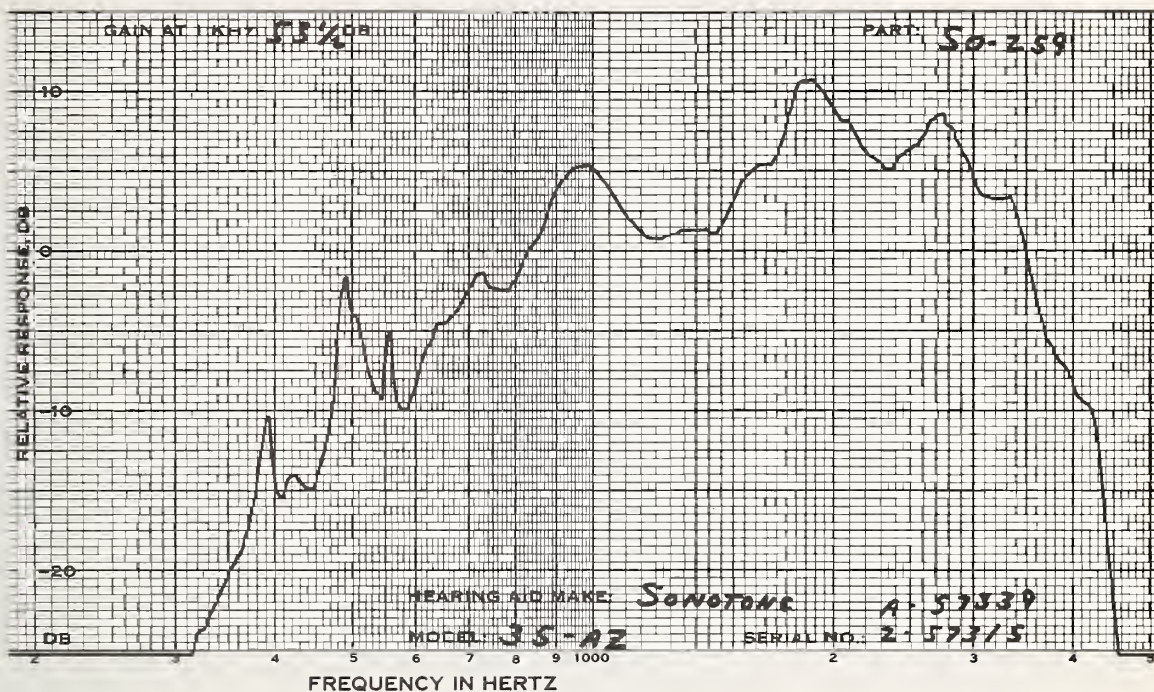
MEASUREMENTS WITH  
 FULL VOL CONTROL

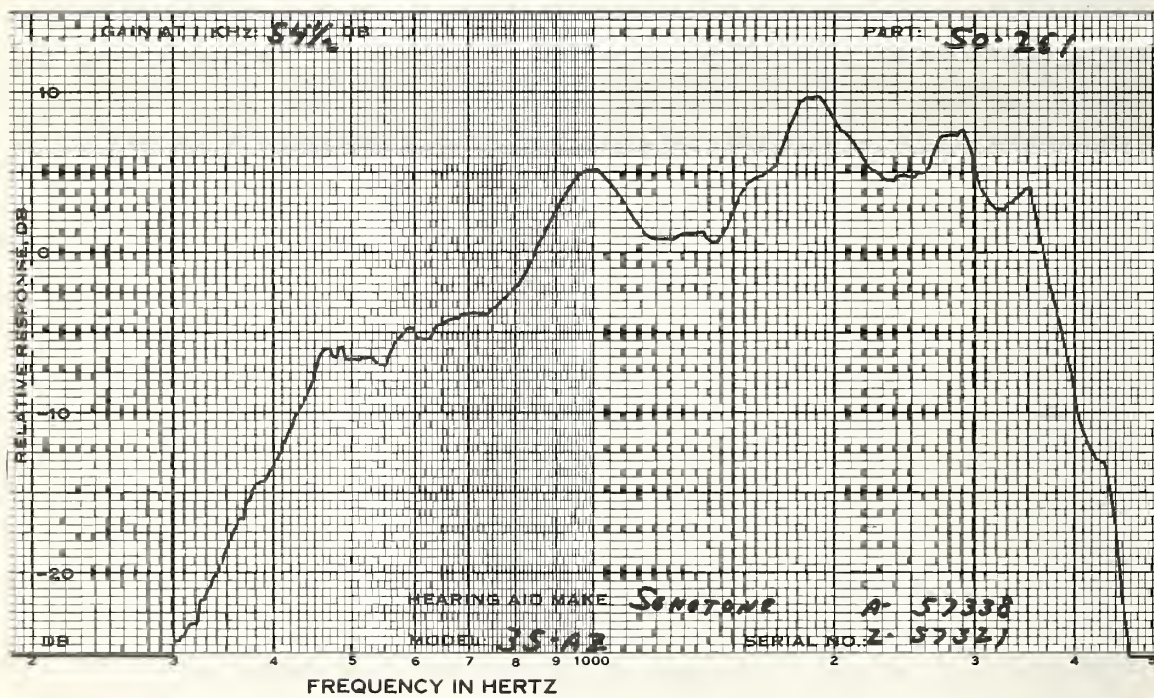
1KHZ GAIN DB	54.5	56.0	56.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.5	75.0	75.0
OUTPUT LEVEL DB	123.5	123.5	123.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	53.5	54.0	54.5
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 10	6 8	6 10
700 HZ %	3 6	2 4	3 5
900 HZ %	3 9	3 6	3 5
MAX DIST %	7 14	6 10	6 10
FREQ OF MAX DIS	1330 1050	1320 1570	500 500
S/N RATIO DB			
1KHZ SIGNAL	51.5	52.5	52.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.9	1.9	1.8
65 DB INPUT	1.9	1.9	1.9
BATTERY VOLTAGE	1.58	1.58	1.57

SO-259 A:57339 Z:57315  
 SO-260 A:57349 Z:57318  
 SO-261 A:57338 Z:57321







SONOTONE  
 MODEL:36-21 MIC ROTOR VALVE:UP TUBING:1 1/8 OE BATTERY:RM13

CODE	SO-262	SO-263	SO-264
SERIAL #	1746	1846	2838
DATE		FEB 4, 1974	

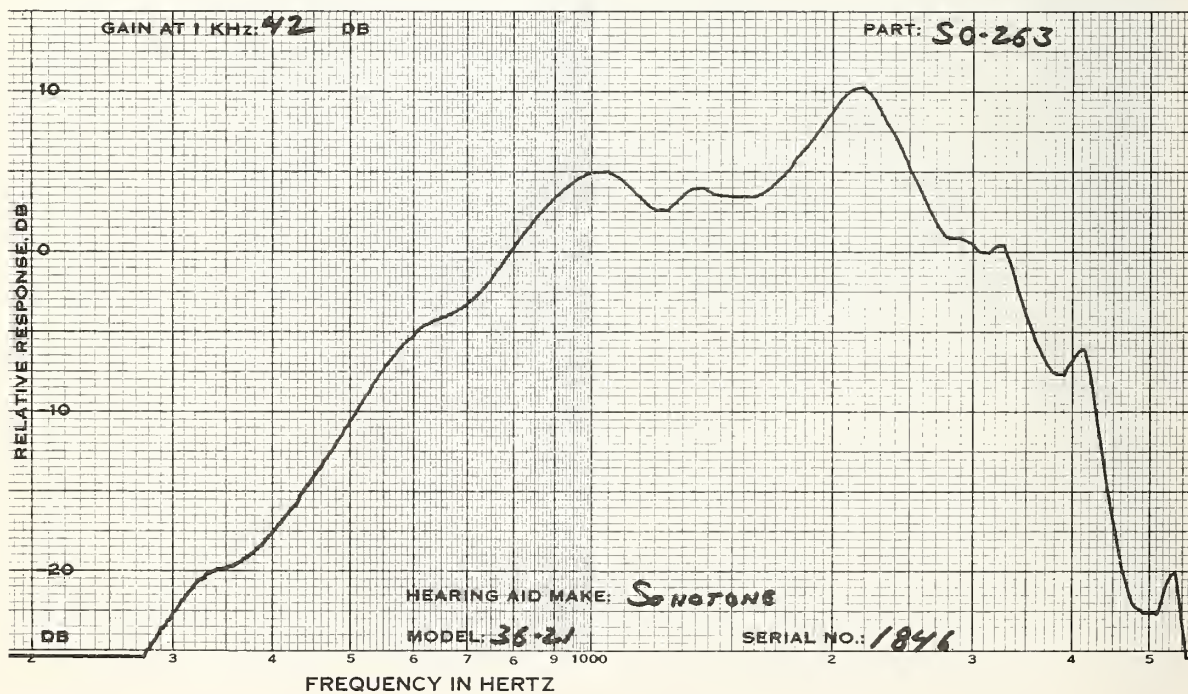
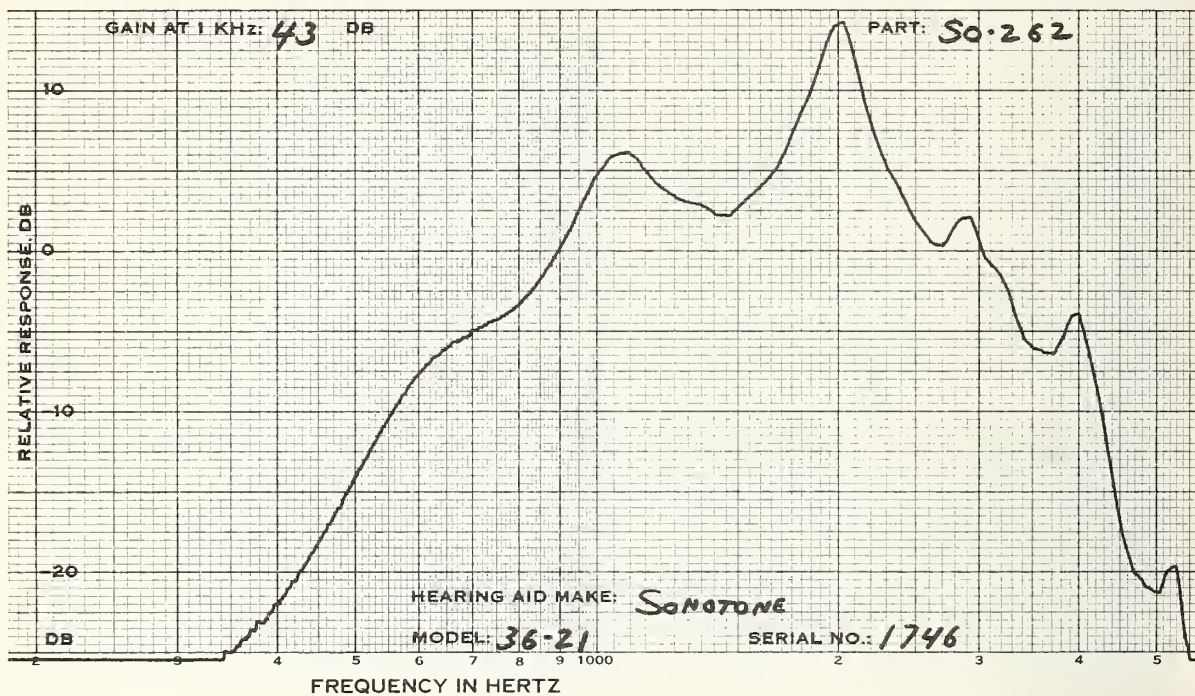
MEASUREMENTS WITH  
 FULL VOL CONTROL

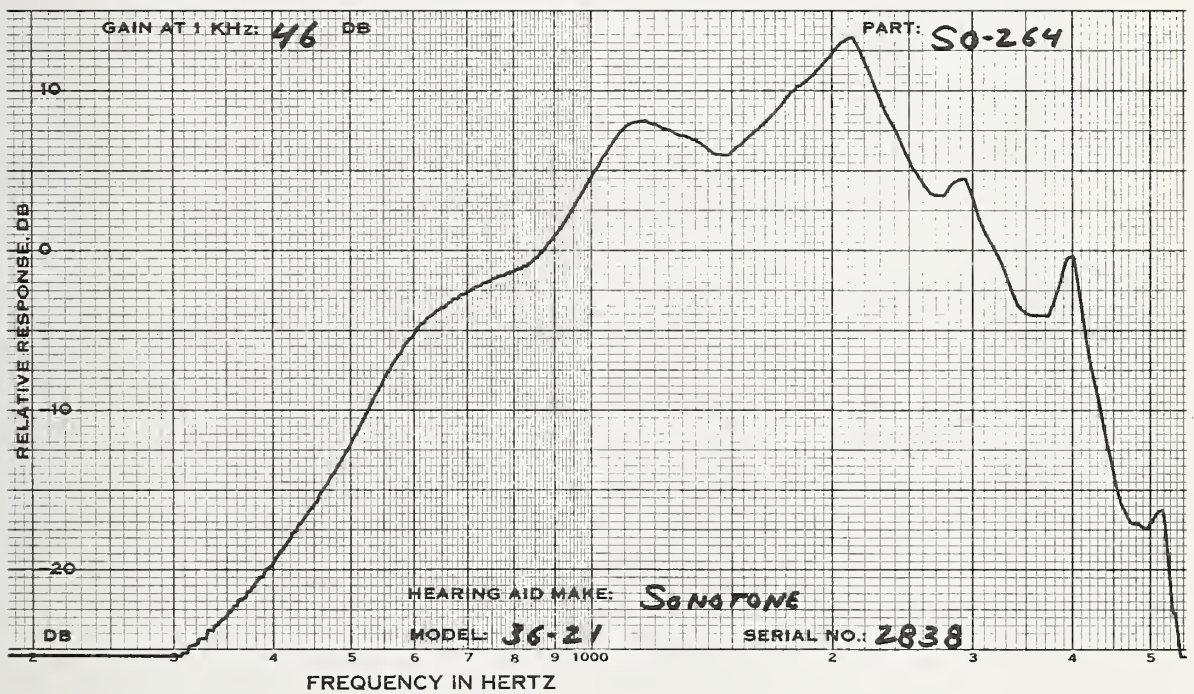
1KHZ GAIN DB	45.5	42.0	46.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	69.0	81.0	81.0
OUTPUT LEVEL DB	112.0	117.0	118.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	43.0	42.0(FULL)	46.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	64.0 74.0	61.0 71.0
500 HZ %	10 5	2 3	6 6
700 HZ %	2 1	1 1	2 2
900 HZ %	3 2	0 3	2 2
MAX DIST %	10 31	3 34	7 55
FREQ OF MAX DIS	500 1960	2000 2000	1970 1970
S/N RATIO DB			
1KHZ SIGNAL	41.0	41.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	.8	.9
65 DB INPUT	.9	.8	.9
BATTERY VOLTAGE	1.33	1.36	1.36

12211-3 INSERT IN NOZZLE BORE







SONOTONE  
MODEL:40-6 TONE:NONE TUBING:1 1/2 BATTERY:S76 EG

CODE	SO-265	SO266A	SO-267
SERIAL #	30562	30955	30665
DATE	FEB 28, 1974	MAY 6, 1974	MAY 6, 1974

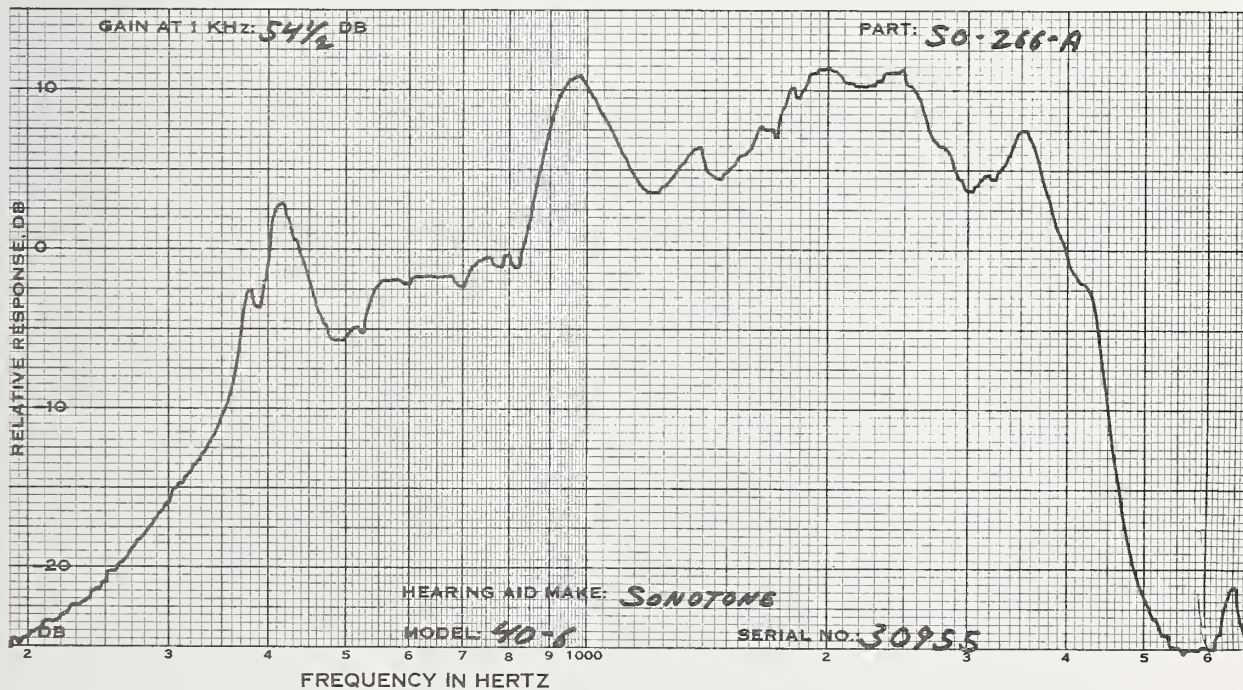
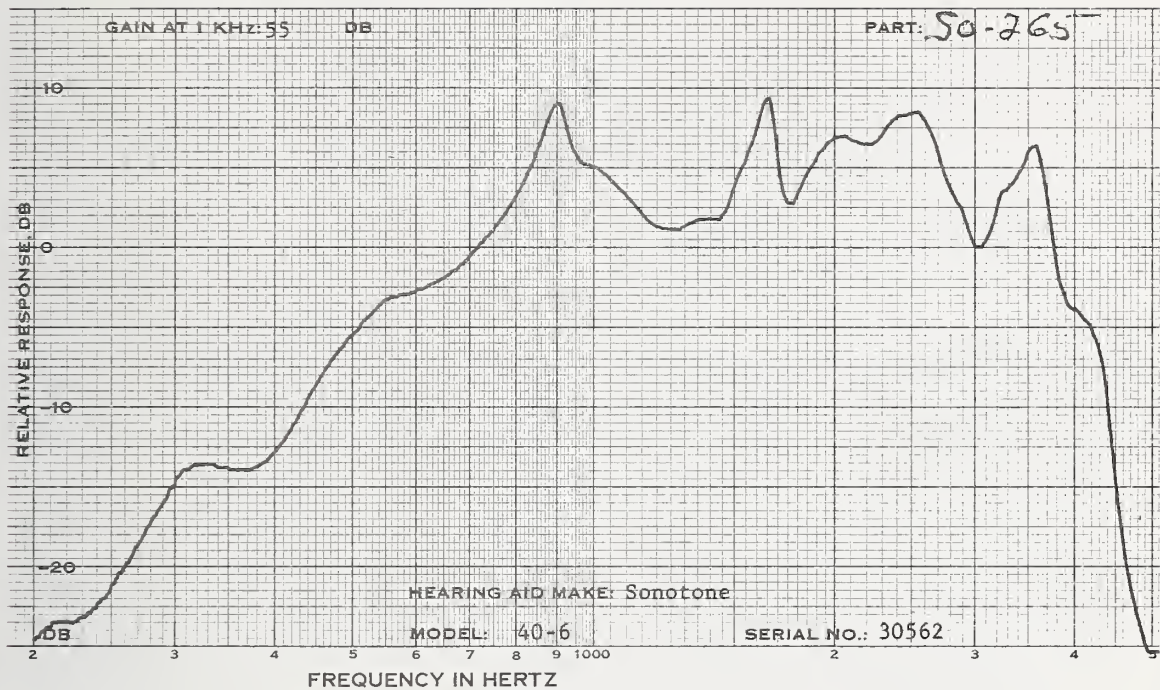
MEASUREMENTS WITH  
FULL VOL CONTROL

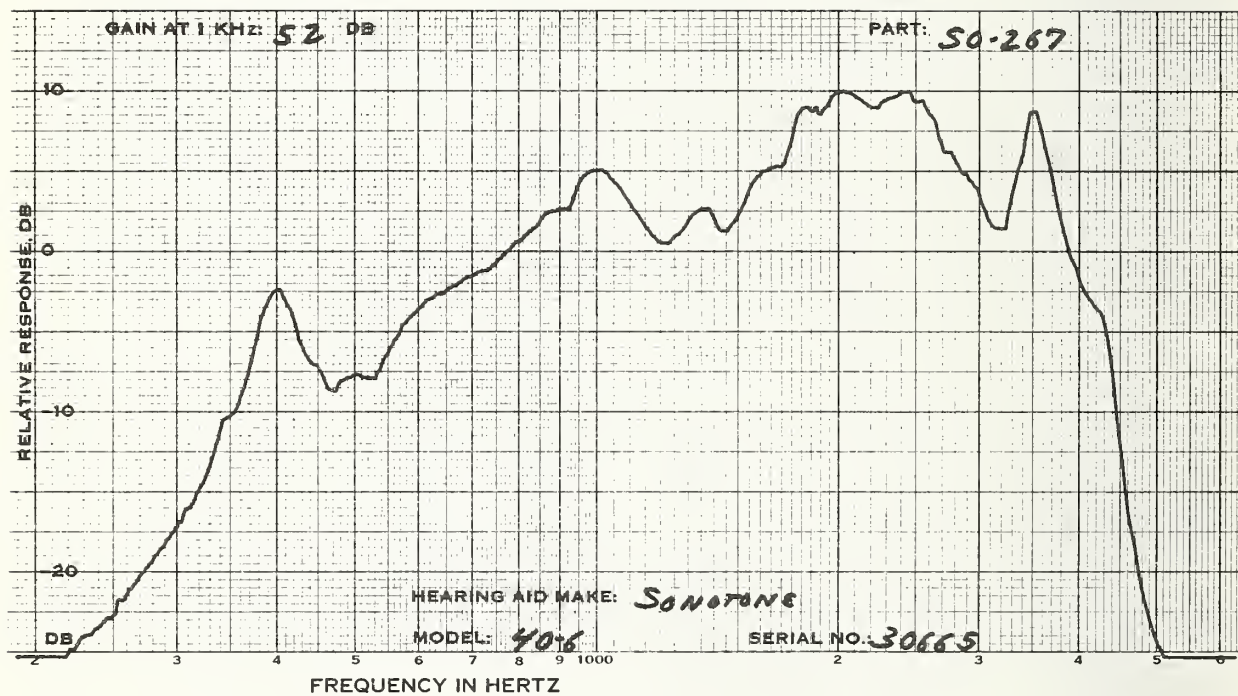
1KHZ GAIN DB	57.5	57.0	55.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	74.5	73.5
OUTPUT LEVEL DB	124.0	122.5	122.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	55.0	54.5	52.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 3	6 4	4 2
700 HZ %	2 6	2 3	2 3
900 HZ %	1 7	0 2	2 1
MAX DIST %	3 9	6 8	4 20
FREQ OF MAX DIS	500 870	500 1320	500 1740
S/N RATIO DB			
1KHZ SIGNAL	44.0	47.5	45.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.8	4.0	3.6
65 DB INPUT	3.8	4.0	3.6
BATTERY VOLTAGE	1.56	1.57	1.56

SO-266, SERIAL # 30610, WAS CONSIDERED DEFECTIVE BECAUSE  
OF OSCILLATION AND A HIGHLY UNSTABLE GAIN WHICH MADE IT  
IMPOSSIBLE TO OBTAIN DATA ON THE AID.







SONOTONE  
 MODEL:77D TONE:NONE TUBING:1 1/8 BATTERY:S76 DIR OE

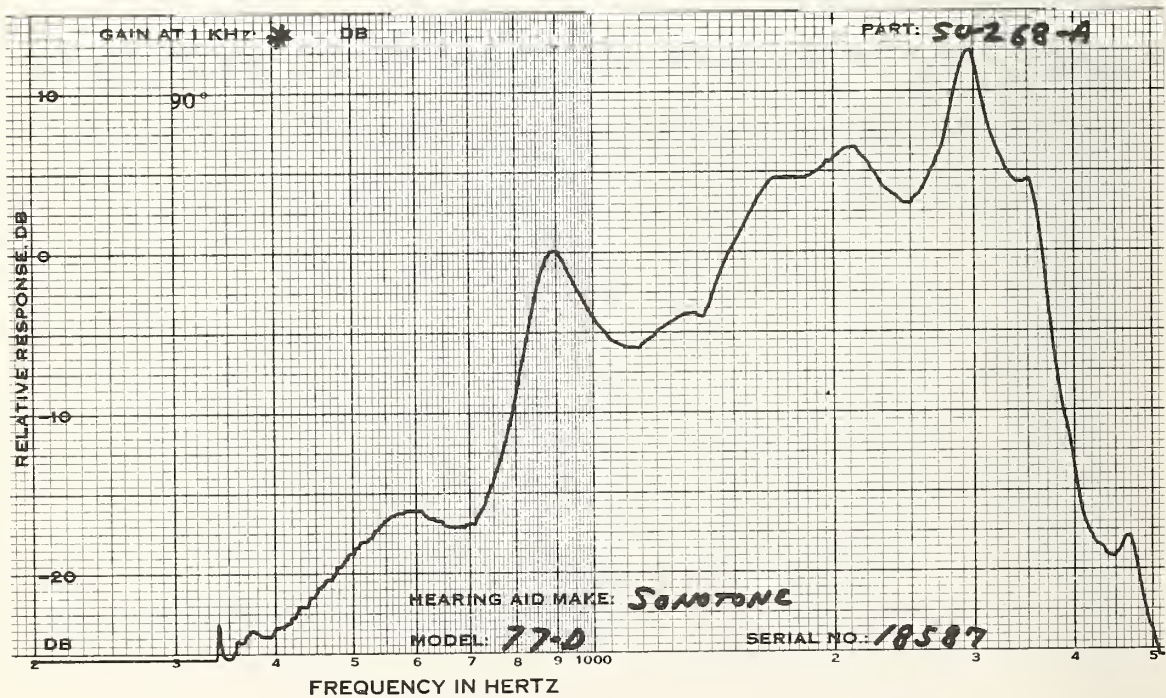
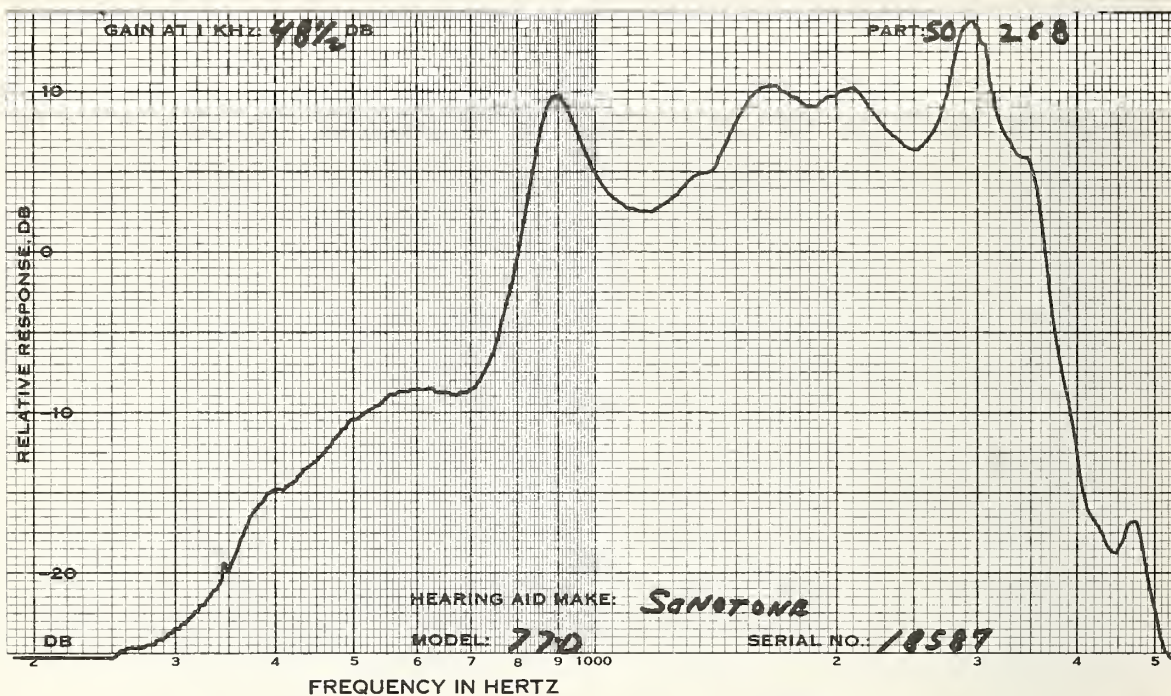
CODE	SO-268	SO-269	SO-270
SERIAL #	18587	18604	19478
DATE		APR 12, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

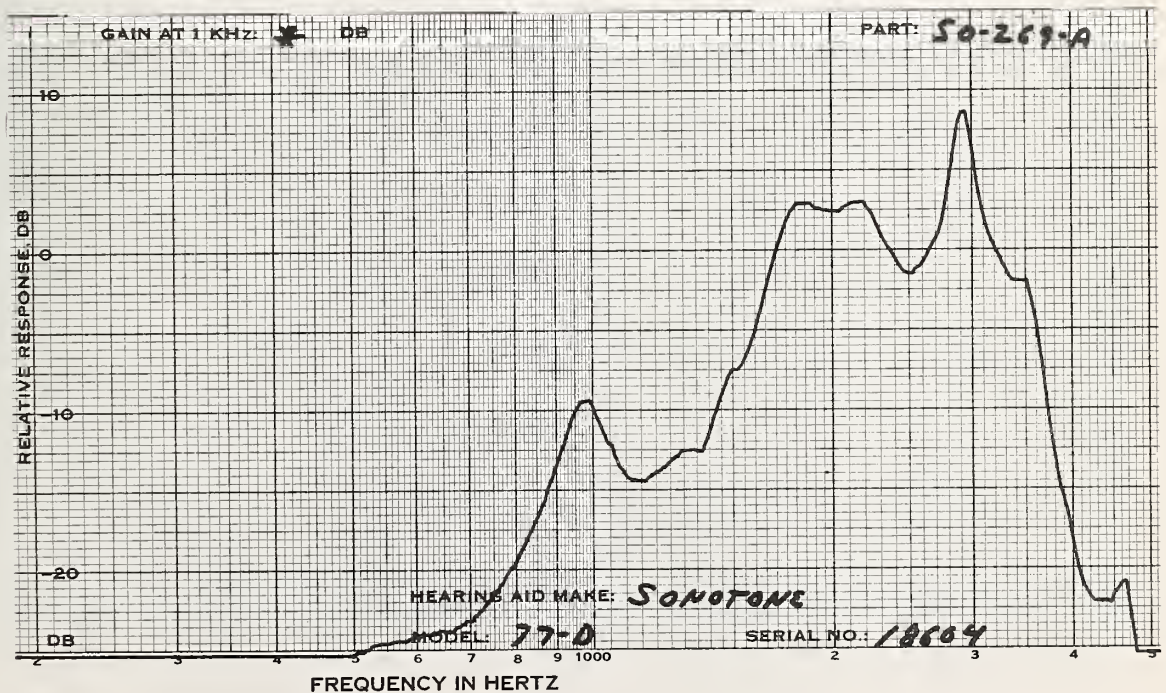
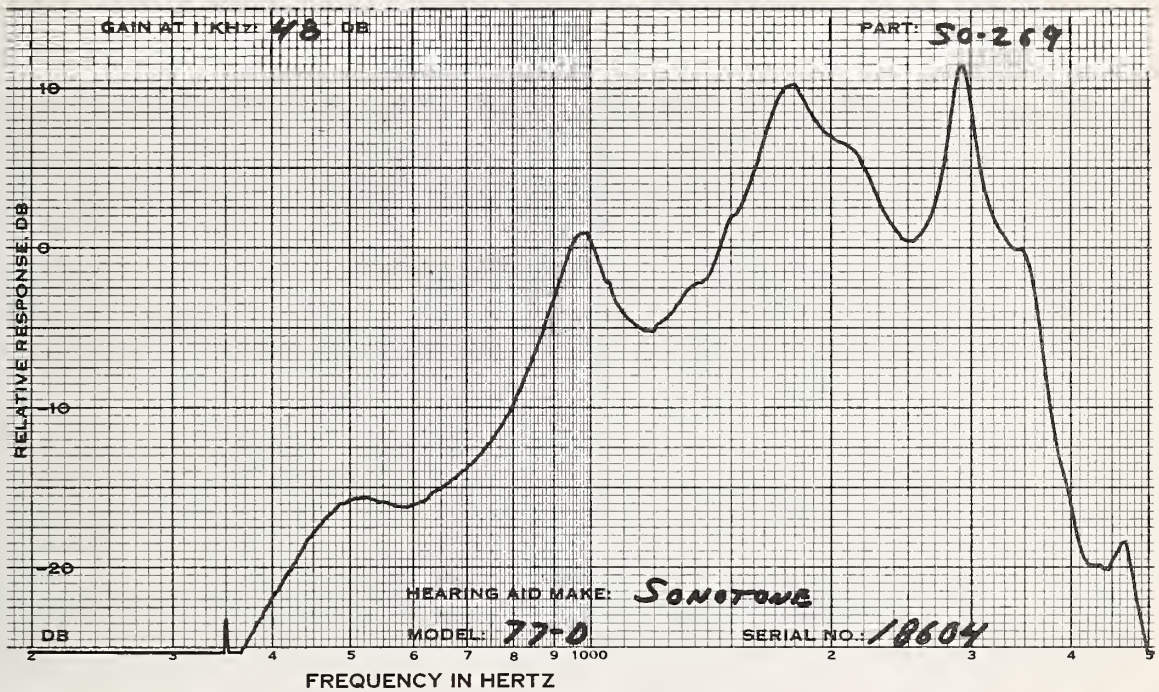
1KHZ GAIN DB	50.5	49.0	51.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	76.0	74.0
OUTPUT LEVEL DB	122.0	123.0	122.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

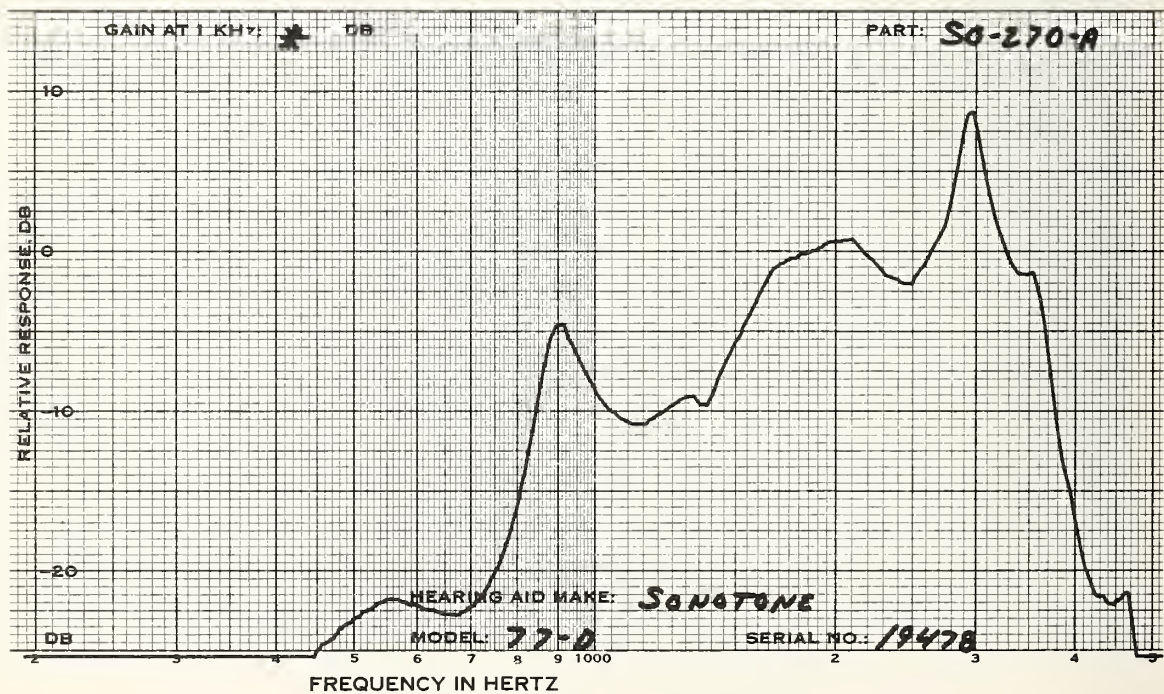
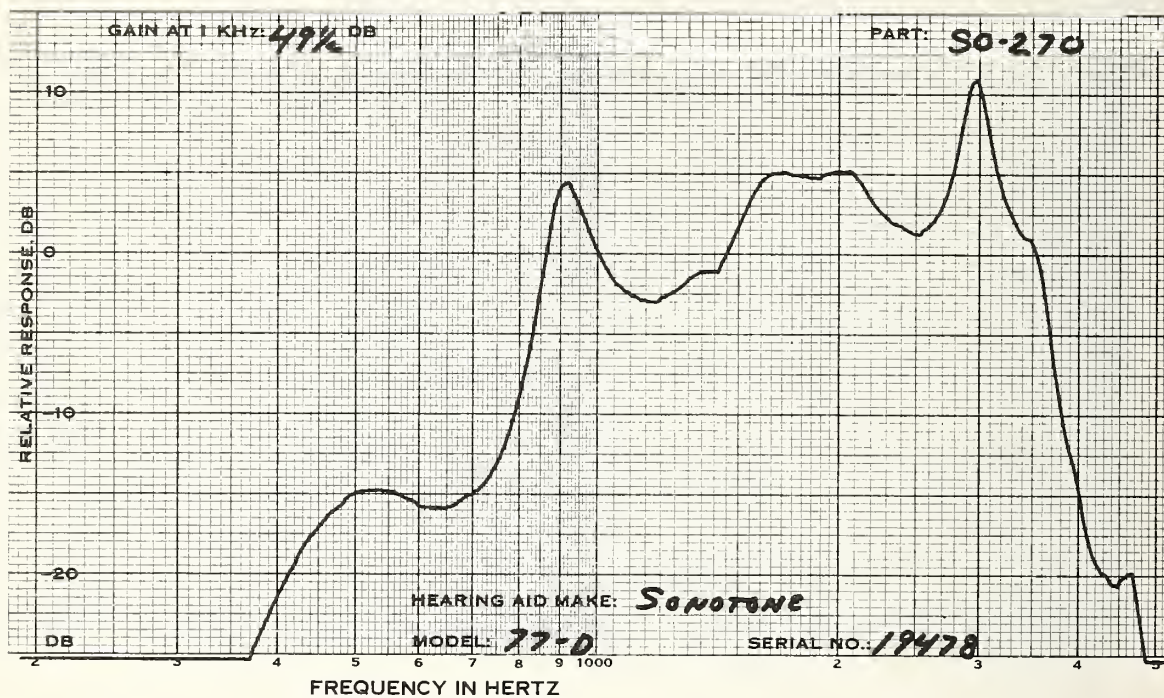
1KHZ GAIN DB	48.5	48.0	49.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 3	5 3	4 3
700 HZ %	4 3	4 2	4 2
900 HZ %	1 1	3 2	1 1
MAX DIST %	5 24	5 20	4 14
FREQ OF MAX DIS	500 1710	500 1740	500 1690
S/N RATIO DB			
1KHZ SIGNAL	43.5	43.0	44.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.1	3.2	3.2
65 DB INPUT	3.1	3.2	3.2
BATTERY VOLTAGE	1.57	1.58	1.57











SONOTONE  
 MODEL:77S TONE:NONE TUBING:1 1/8 BATTERY:S76 OE

CODE	SO-271	SO-272	SO-273
SERIAL #	18347	19027	19087
DATE		FEB 7, 1974	

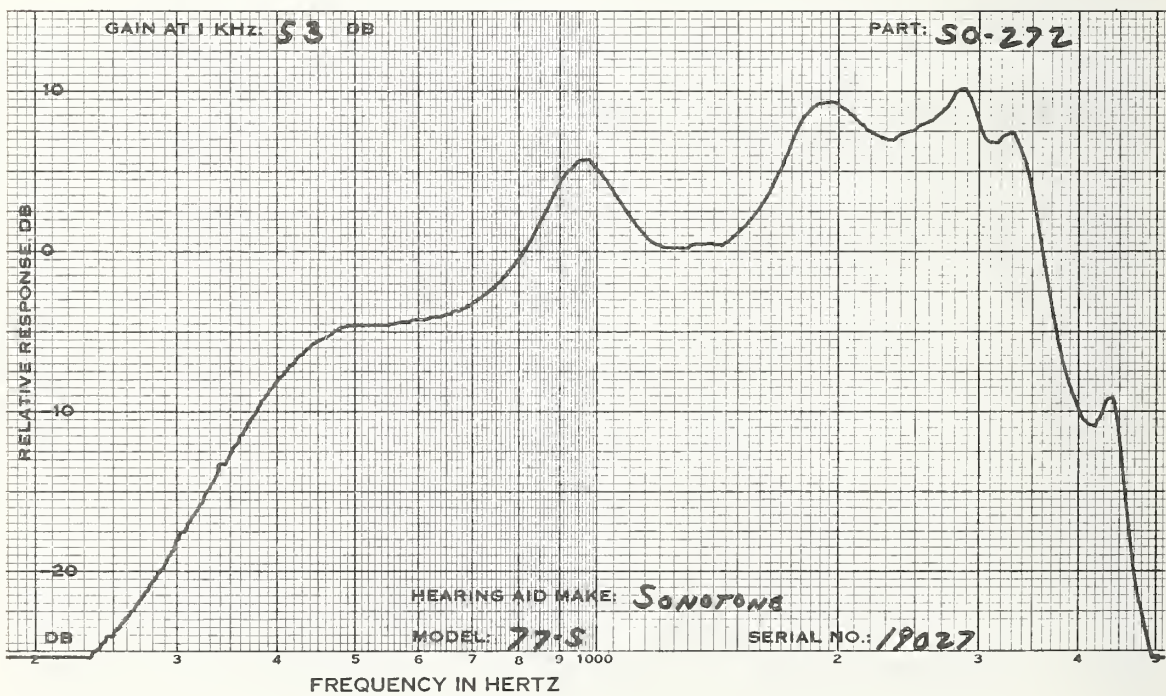
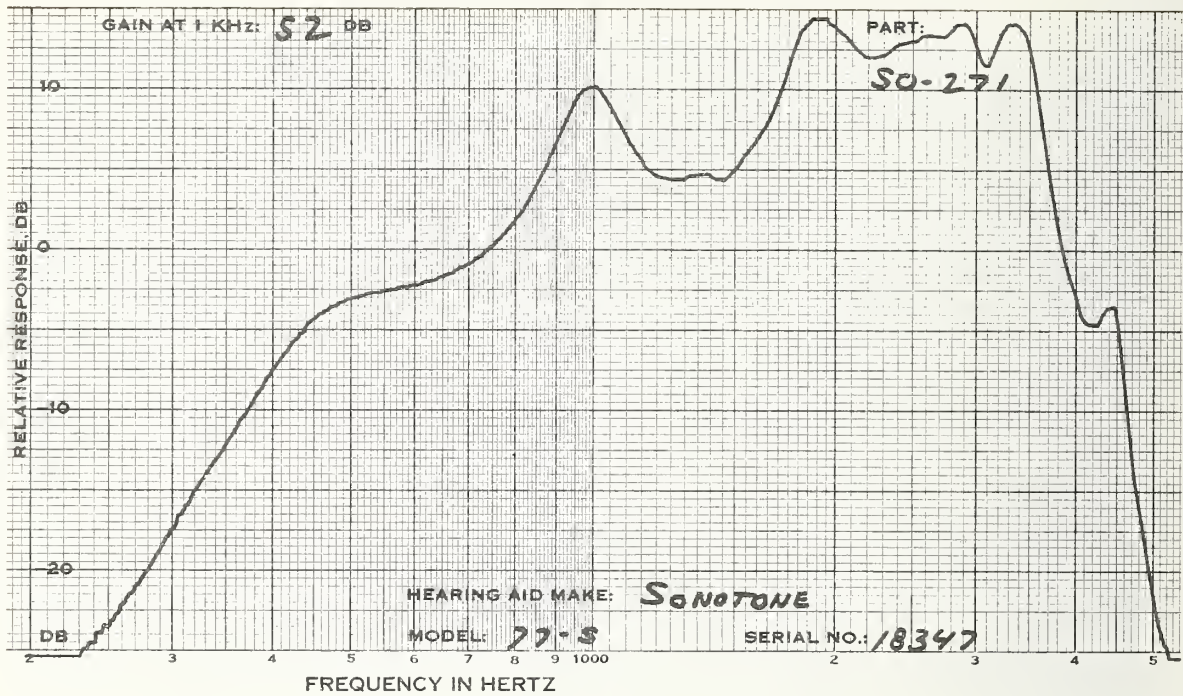
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	52.0	55.0	58.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	81.0	79.0	78.0
OUTPUT LEVEL DB	123.5	124.0	124.5

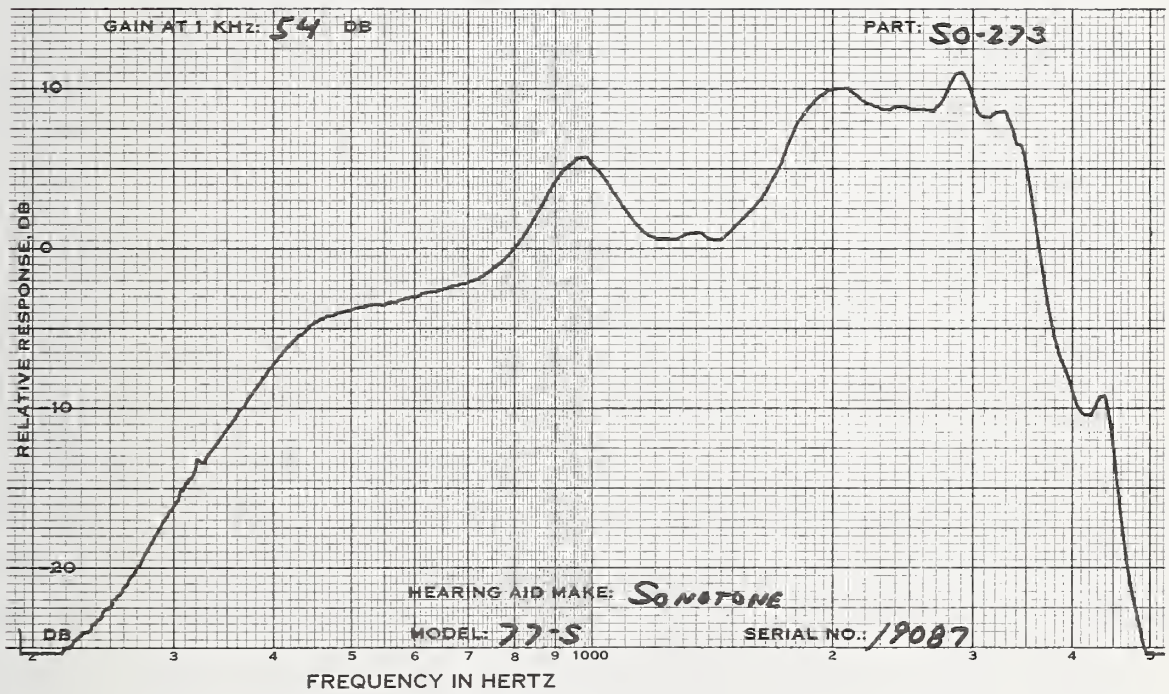
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	52.0(FULL)	53.0	54.0
HARMONIC DIST			
INPUT LEVEL DB	61.0 71.0	60.0 70.0	60.0 70.0
500 HZ %	4 4	2 1	2 1
700 HZ %	2 3	2 2	2 2
900 HZ %	1 2	1 0	1 1
MAX DIST %	4 11	2 12	2 15
FREQ OF MAX DIS	500 1740	500 1690	500 1720
S/N RATIO DB			
1KHZ SIGNAL	45.5	44.5	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.3	3.0	3.0
65 DB INPUT	3.3	3.0	3.0
BATTERY VOLTAGE	1.55	1.55	1.55









SONOTONE

OB

MODEL:670XV TONE:F-N-N-P RED MIKE INSERT RECEIVER:4121RP BAT:TR132

CODE	SO-274	SO275A	SO-276
SERIAL #	A9376	A7410	B4560
DATE	FEB 27, 1974	MAY 6, 1974	FEB 27, 1974

MEASUREMENTS WITH  
FULL VOL CONTROL

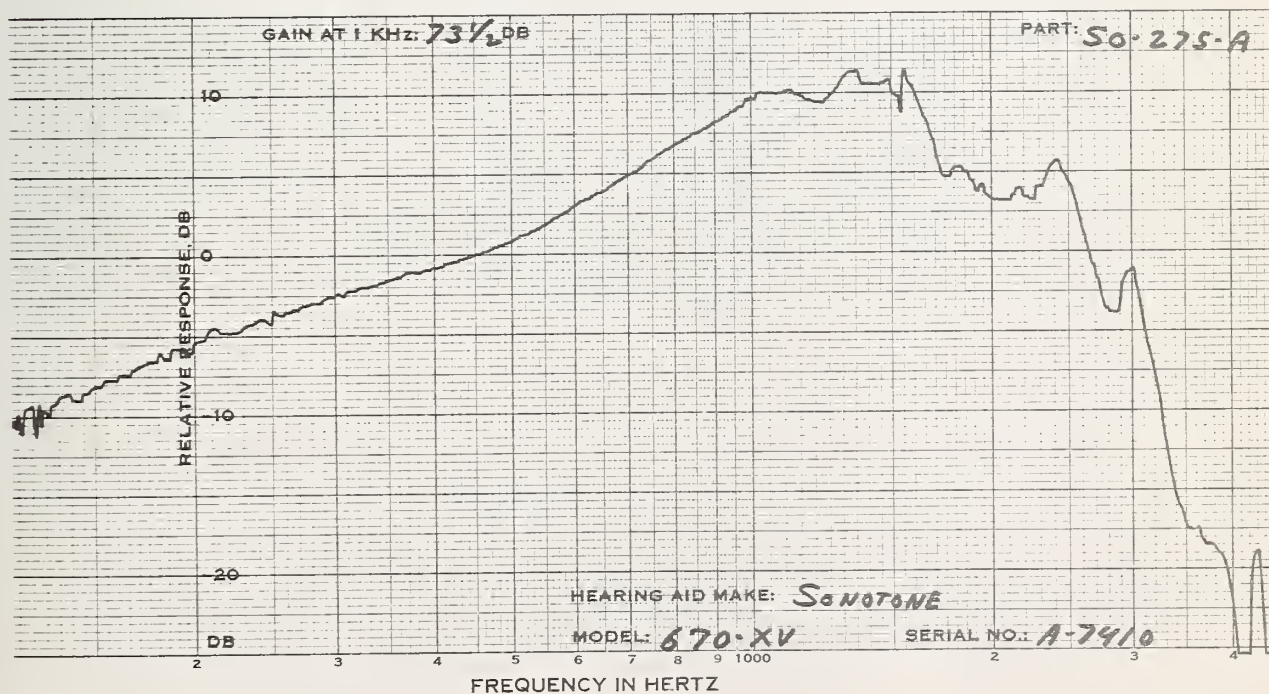
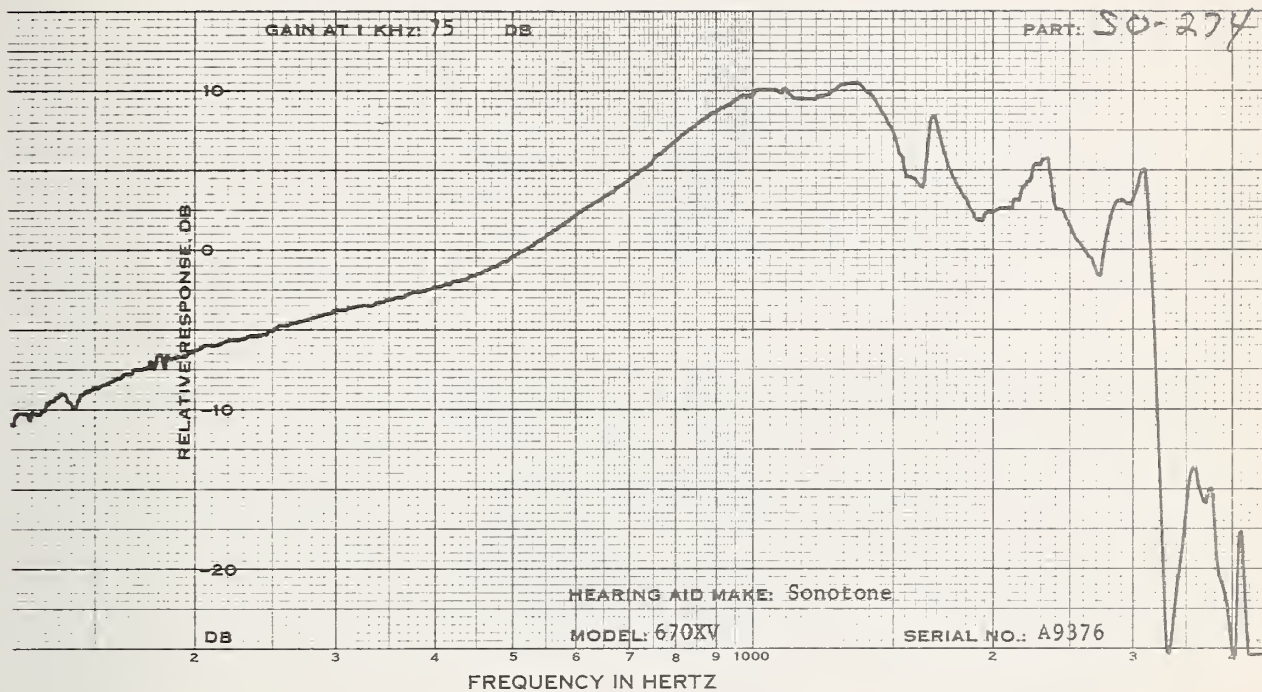
	SO-274	SO275A	SO-276
1KHZ GAIN DB	84.0	83.0	82.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	71.0	63.5	72.0
OUTPUT LEVEL DB	142.0	141.5	141.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

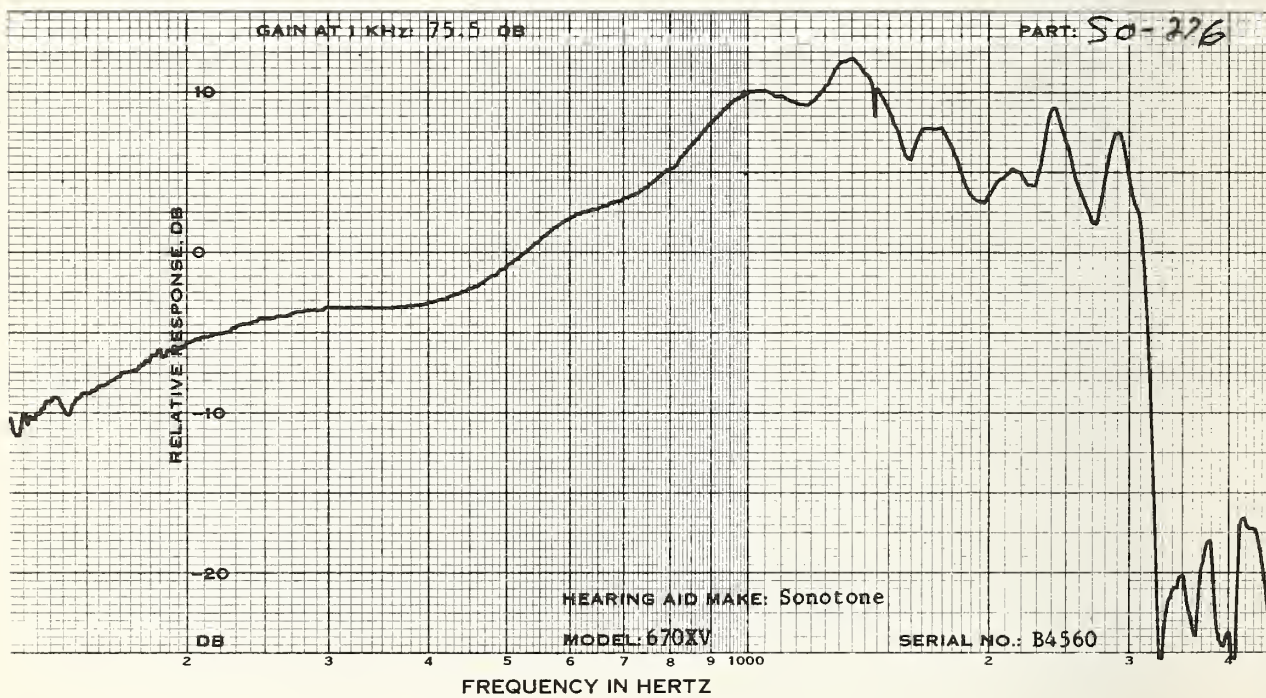
	SO-274	SO275A	SO-276
1KHZ GAIN DB	75.0	73.5	75.5
HARMONIC DIST			
2INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	7 19	17 22	8 19
700 HZ %	2 12	5 8	3 8
900 HZ %	2 6	2 5	2 2
MAX DIST %	7 19	17 22	9 20
FREQ OF MAX DIS	500 500	500 500	570 520
S/N RATIO DB			
1KHZ SIGNAL	50.5	49.0	49.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	7.7	8.0	8.0
65 DB INPUT	23.0	24.0	27.0
BATTERY VOLTAGE	2.68	2.65	2.65

SO-275, SERIAL # B4203, STOPPED OPERATING PROPERLY SHORTLY  
AFTER BEING TURNED ON. IT WOULD PUT OUT A WEAK DISTORTED  
SIGNAL WITH A SUFFICIENTLY HIGH INPUT.

THE GAIN ON SO-274 HAD TO BE REDUCED SLIGHTLY BEFORE BEGINNING  
THE TEST TO STOP FEEDBACK.







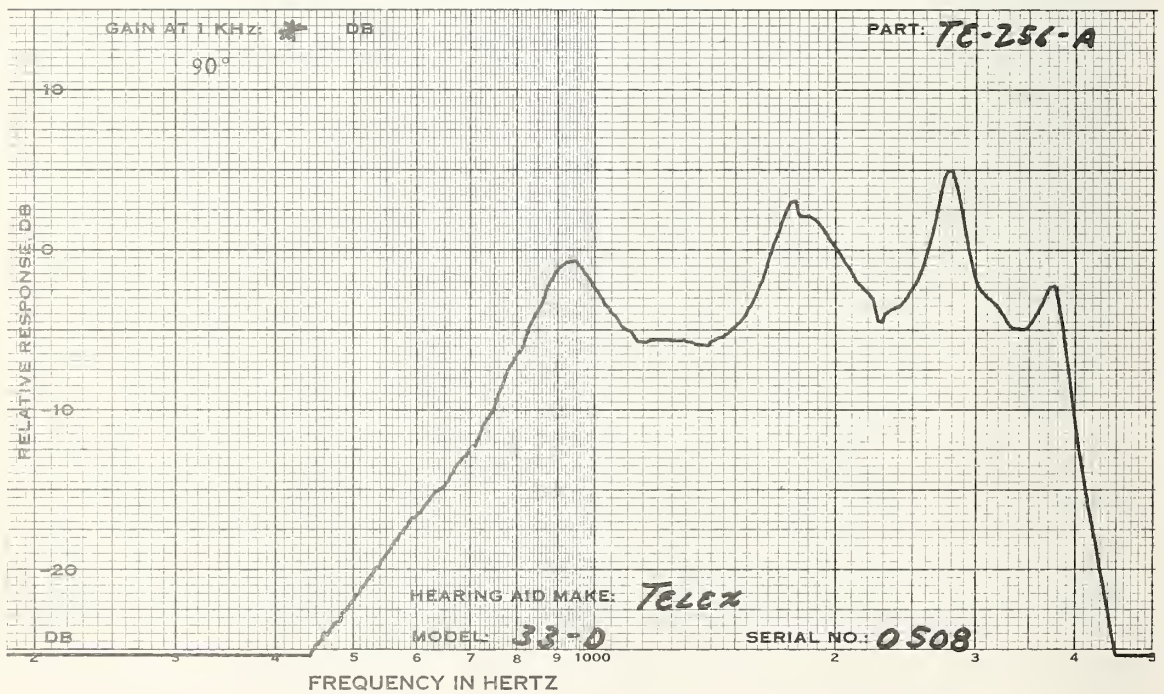
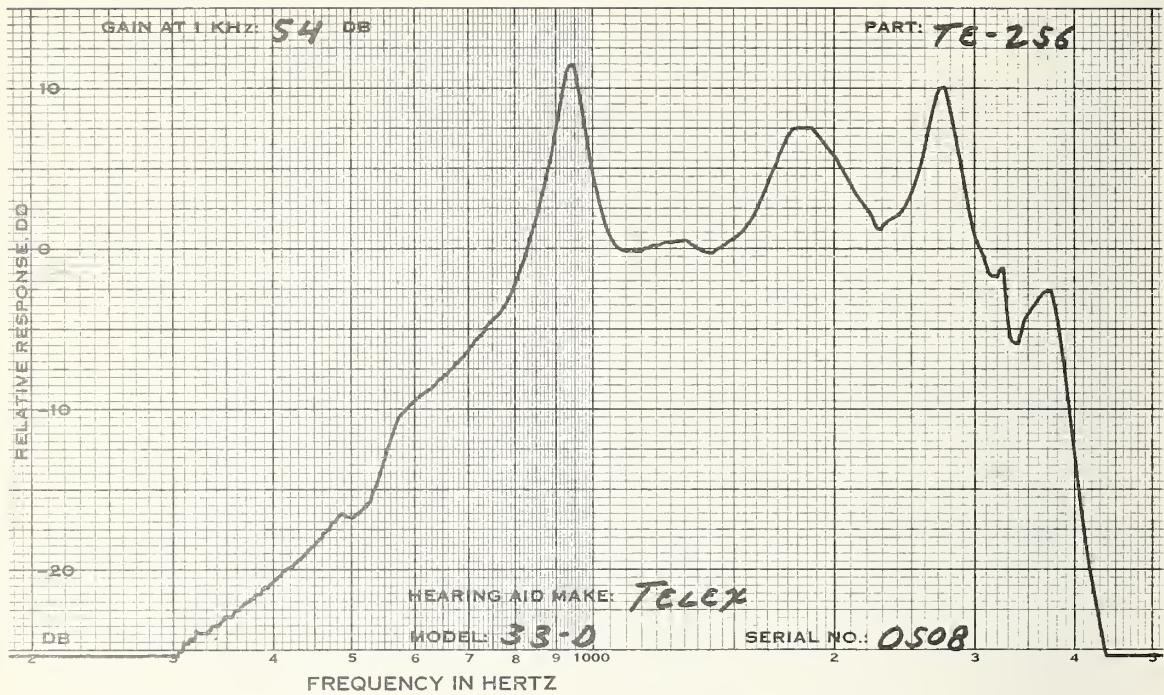
TELEX			DIR OE
MODEL:33D	TONE:CCW	TUBING:1 1/4	BATTERY:S76
CODE	TE-256	TE-257	TE-258
SERIAL #	0508	0551	1127
DATE		FEB 25, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

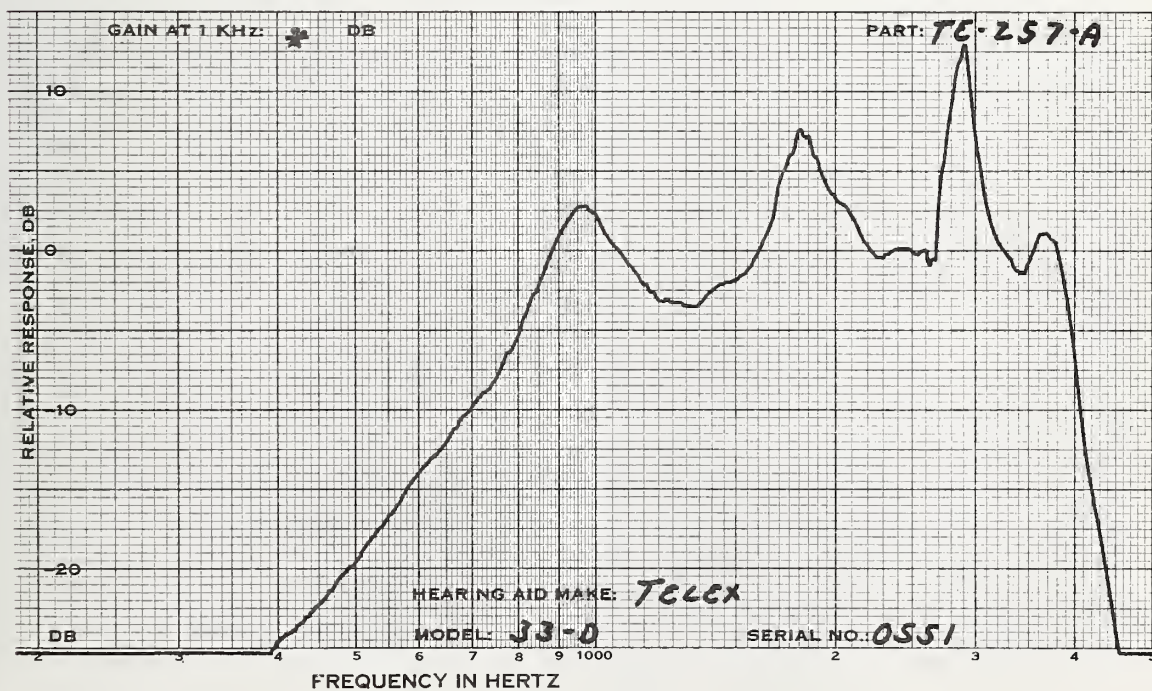
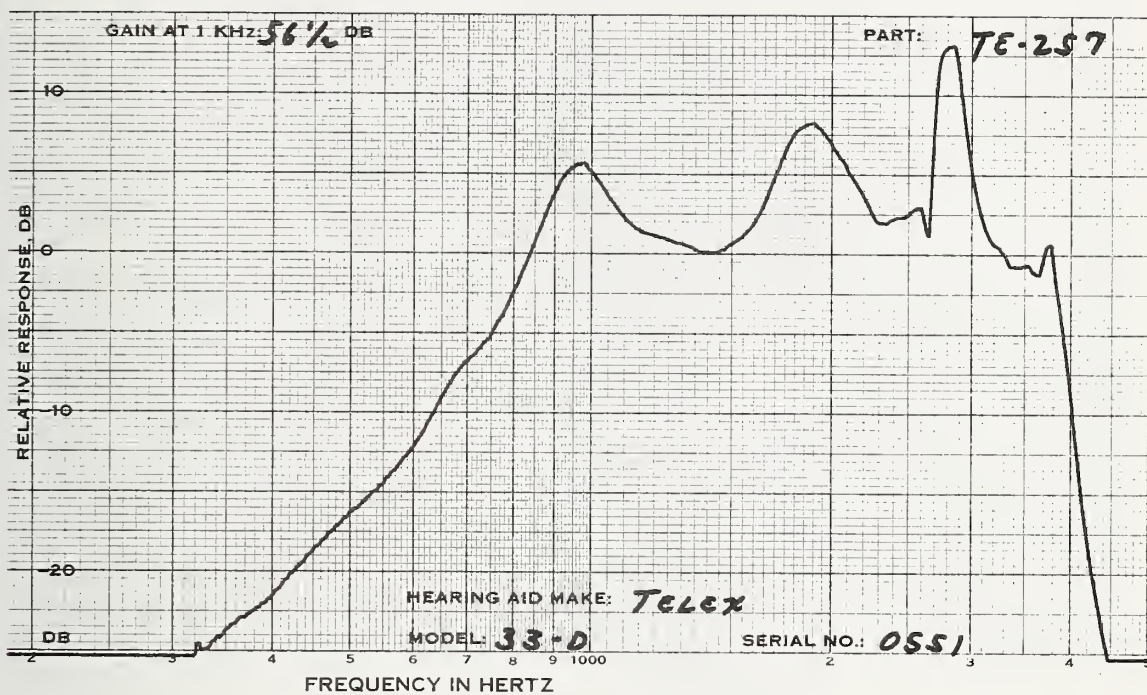
1KHZ GAIN DB	54.0	56.5	57.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	79.0	82.0
OUTPUT LEVEL DB	127.5	127.0	127.0

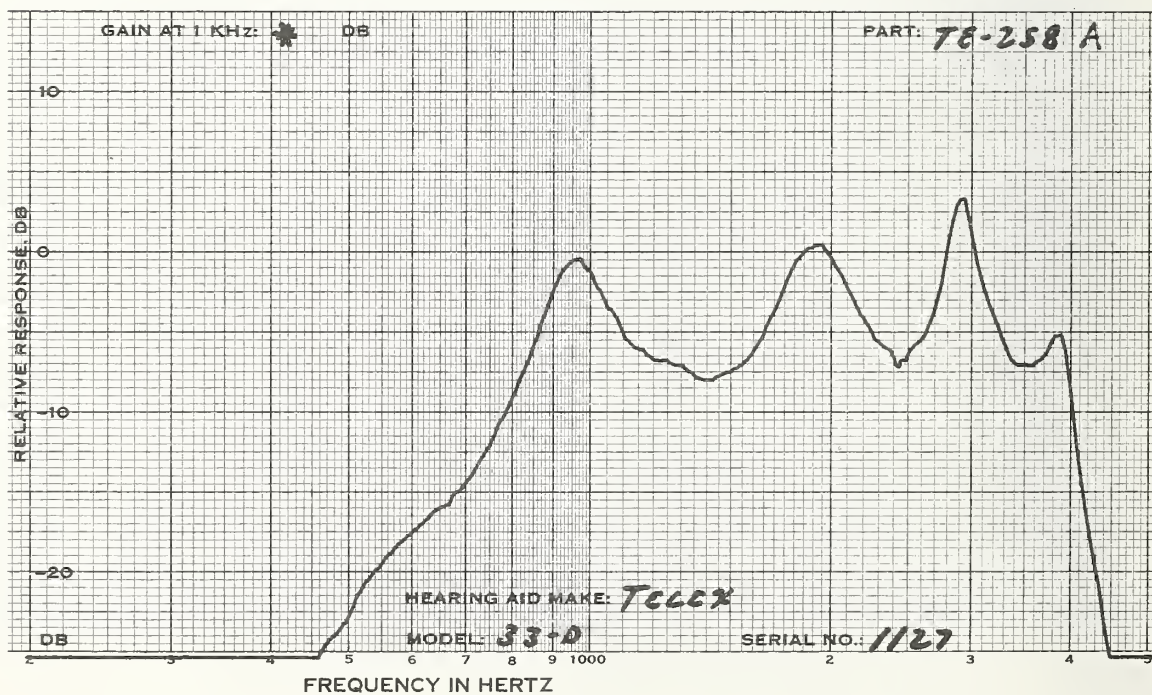
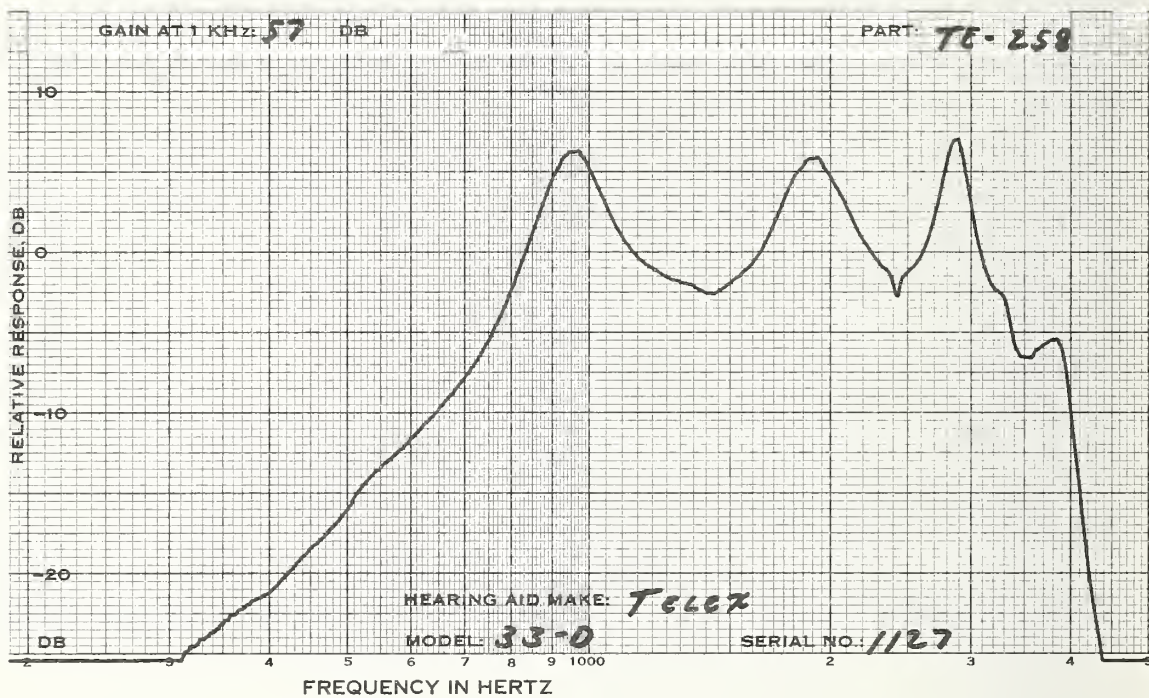
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	54.0(FULL)	56.5(FULL)	57.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	61.0 71.0	61.0 71.0	63.5 73.5
500 HZ %	17 24	22 25	4 15
700 HZ %	5 8	5 7	2 7
900 HZ %	3 4	4 6	1 2
MAX DIST %	17 24	22 25	4 15
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.5	48.0	48.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.7	1.7	2.2
65 DB INPUT	2.0	1.9	2.3
BATTERY VOLTAGE	1.57	1.57	1.57









TELEX HP OE  
 MODEL:331H TONE:CCW TUBING:3/4 BATTERY:S13

CODE	TE-259	TE-260	TE-261
SERIAL #	0618	0739	0787
DATE		FEB 20, 1974	

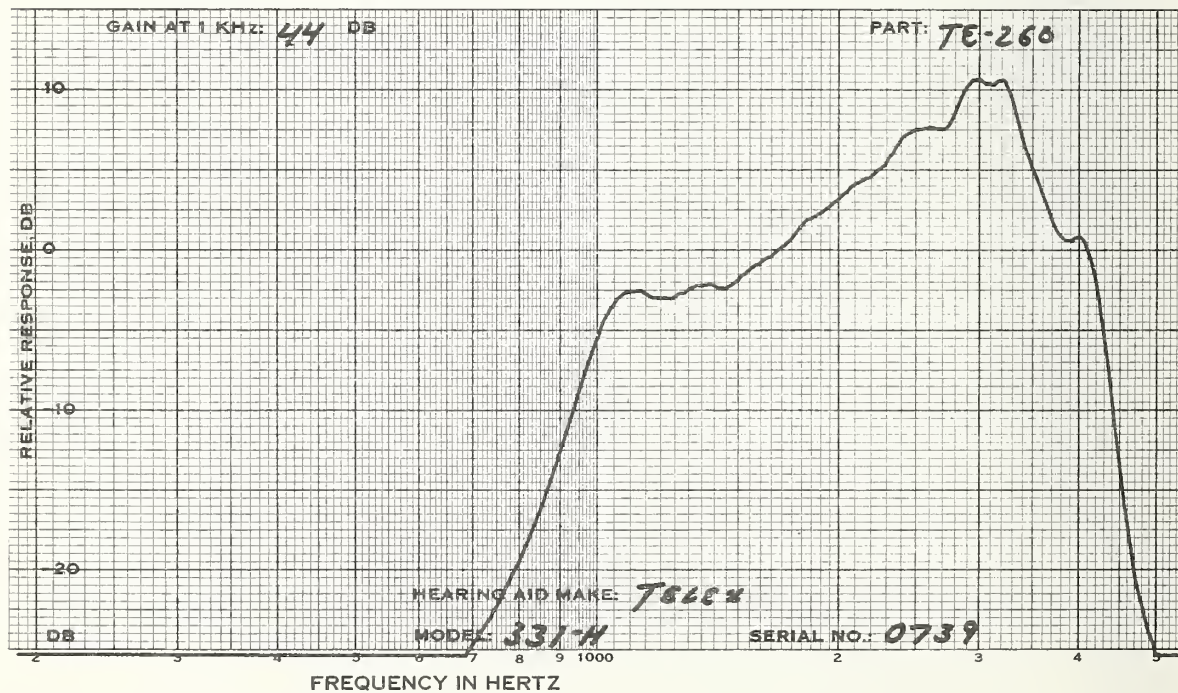
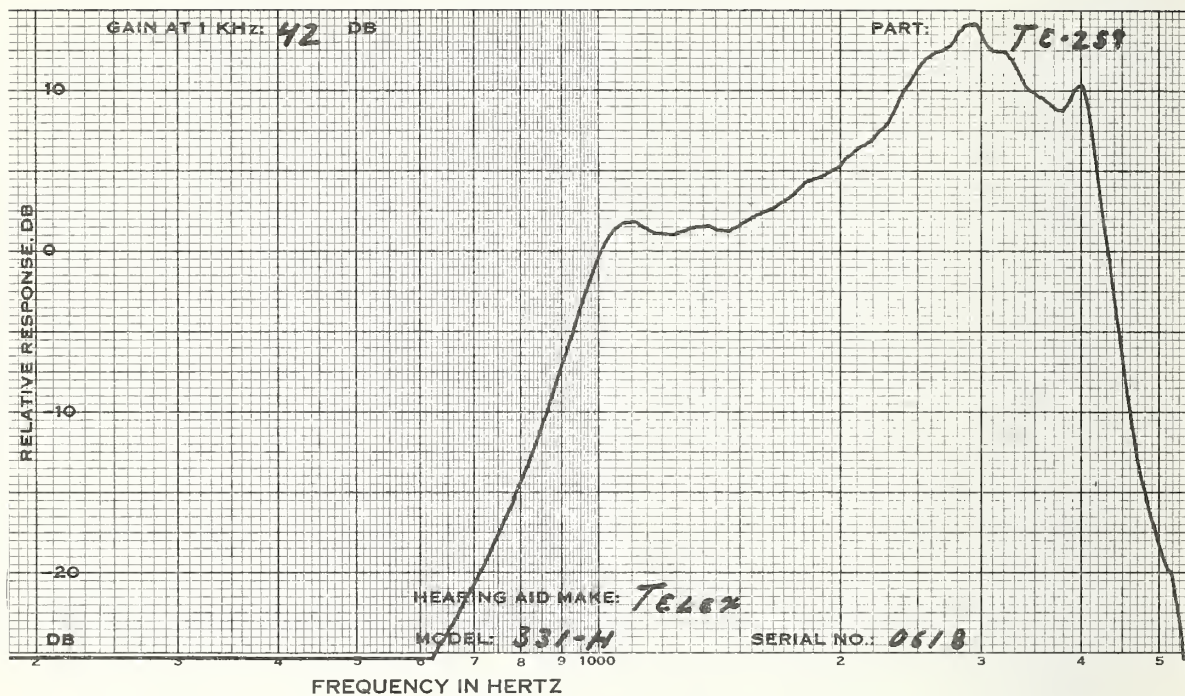
MEASUREMENTS WITH  
 FULL VOL CONTROL

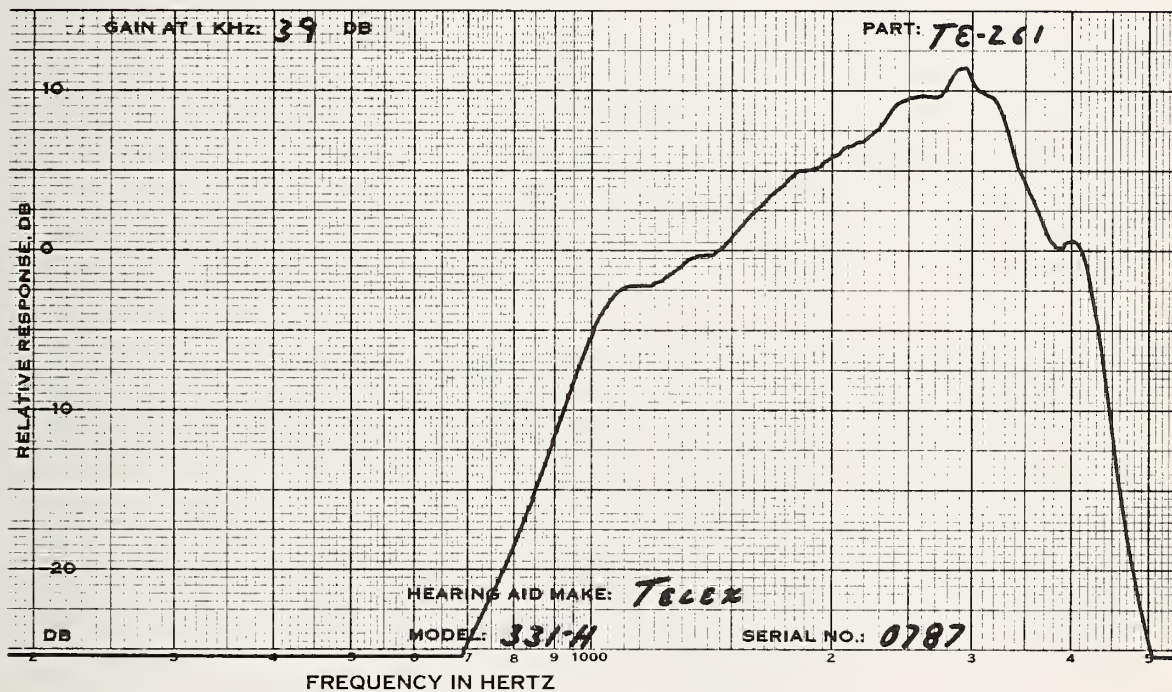
1KHZ GAIN DB	42.0	44.0	39.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	81.0	77.5	79.5
OUTPUT LEVEL DB	120.0	120.5	119.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	42.0(FULL)	44.0(FULL)	39.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	62.0 72.0	60.0 70.0	62.0 72.0
1000 HZ %	3 3	3 3	4 2
1500 HZ %	1 9	3 19	4 19
2000 HZ %	3 7	5 8	2 4
MAX DIST %	3 9	5 19	4 20
FREQ OF MAX DIS	2000 1500	2030 1500	1550 1550
S/N RATIO DB			
1KHZ SIGNAL	40.5	41.5	40.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	1.0	.9
65 DB INPUT	1.0	1.0	1.0
BATTERY VOLTAGE	1.57	1.56	1.56
S/N 2KHZ	44.5	49.0	50.0







TELEX  
MODEL:334 TONE:CCW POWER:CW TUBING:3/4 BATTERY:S76

OE

CODE	TE-262	TE-263	TE-264
SERIAL #	0265	0277	0313
DATE		FEB 25, 1974	

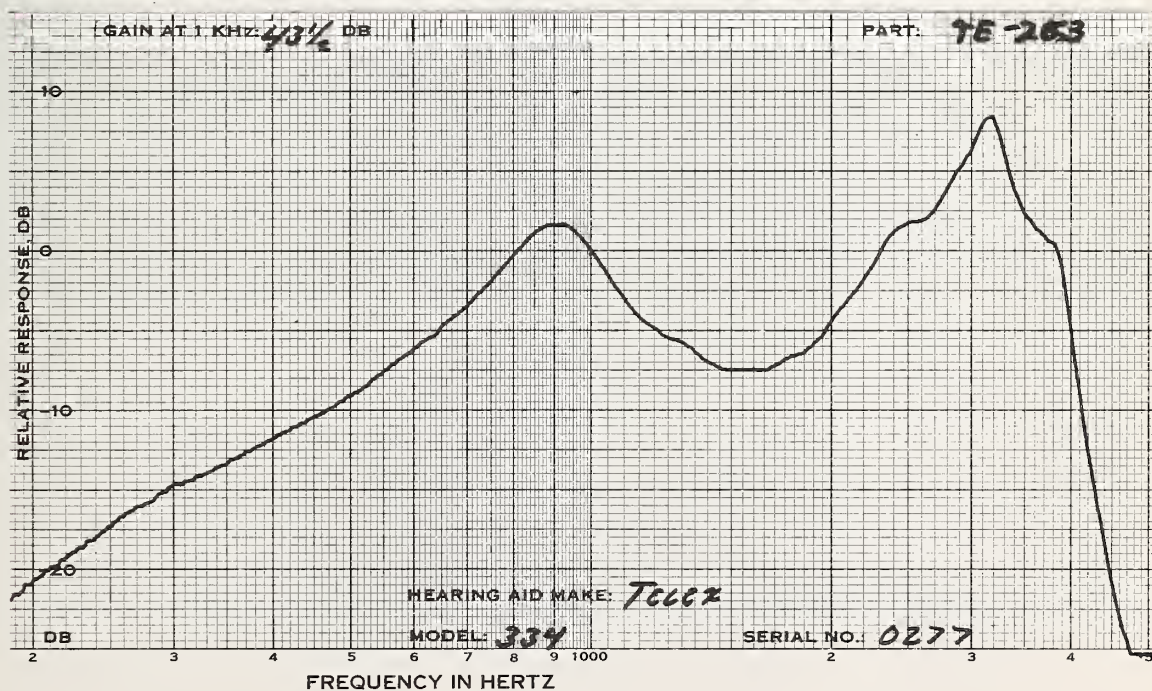
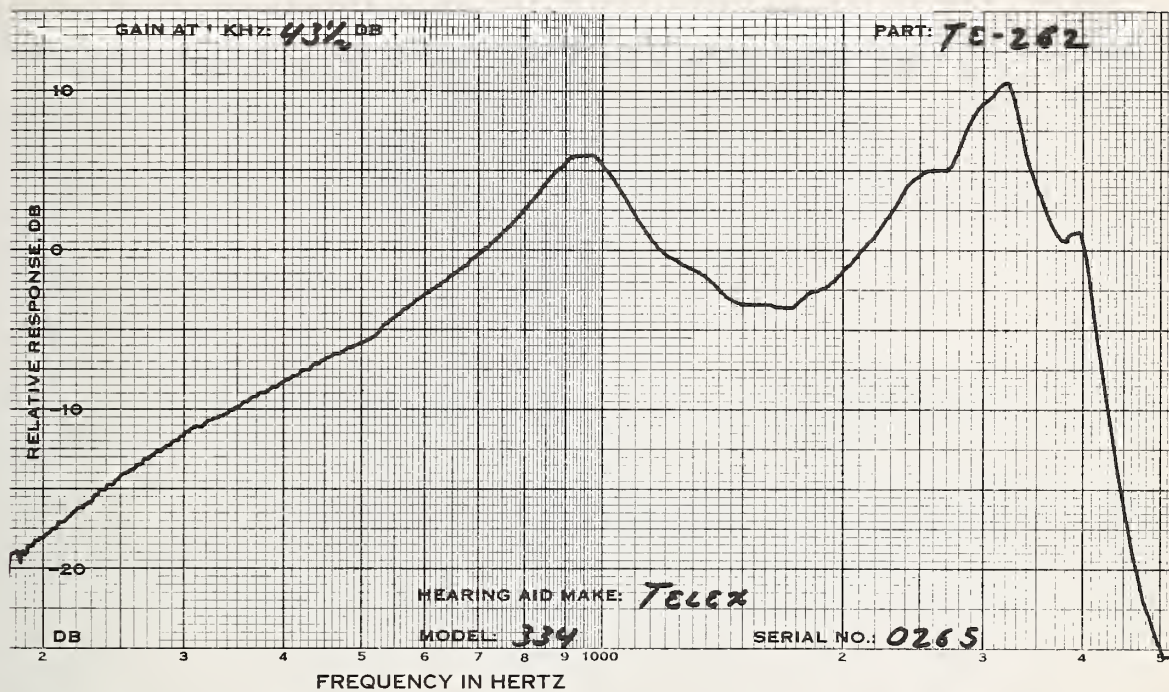
MEASUREMENTS WITH  
FULL VOL CONTROL

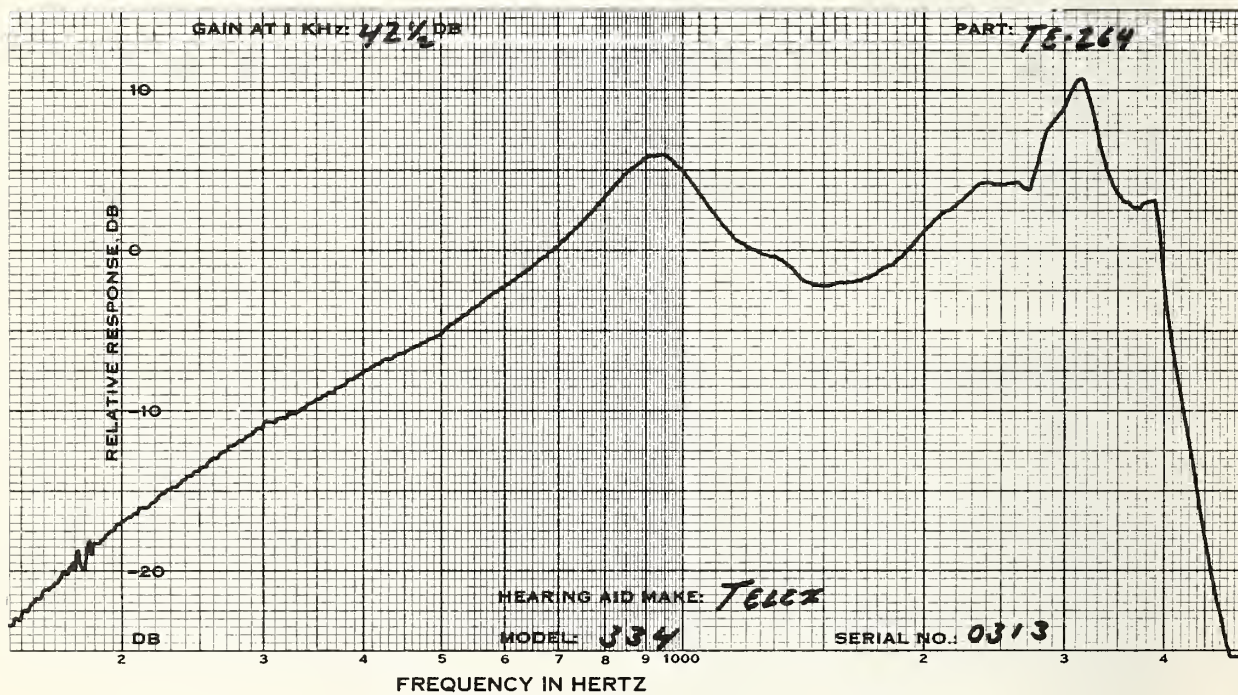
1KHZ GAIN DB	53.5	53.5	54.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	74.0	73.0
OUTPUT LEVEL DB	112.0	113.0	112.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	43.5	43.5	42.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 6	4 4	5 16
700 HZ %	0 2	1 3	1 4
900 HZ %	1 4	1 4	1 4
MAX DIST %	3 12	4 12	5 17
FREQ OF MAX DIS	500 1010	1600 1040	500 500
S/N RATIO DB			
1KHZ SIGNAL	41.5	41.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.4	2.3	2.4
65 DB INPUT	2.4	2.4	2.4
BATTERY VOLTAGE	1.57	1.57	1.56







TELEX  
MODEL:25 TONE:CCW BATTERY:S13

IE

CODE	TE-265	TE-266	TE267A
SERIAL #	8456	8466	8708
DATE	MAY 14, 1974	MAY 14, 1974	MAY 20, 1974

MEASUREMENTS WITH  
FULL VOL CONTROL

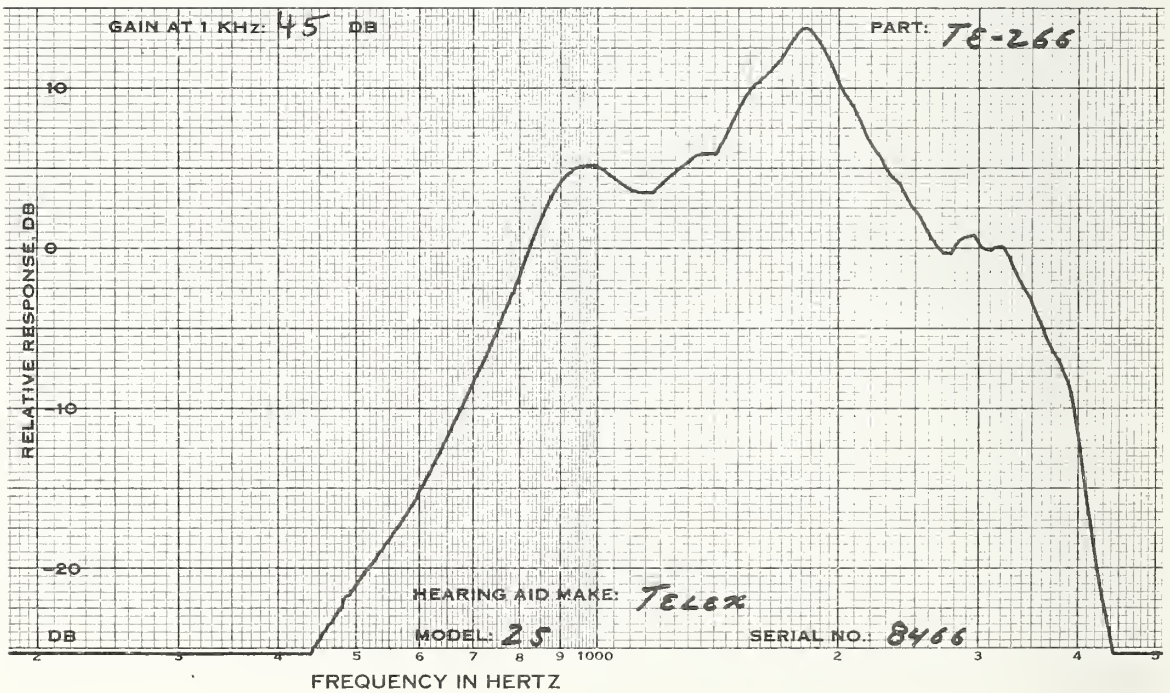
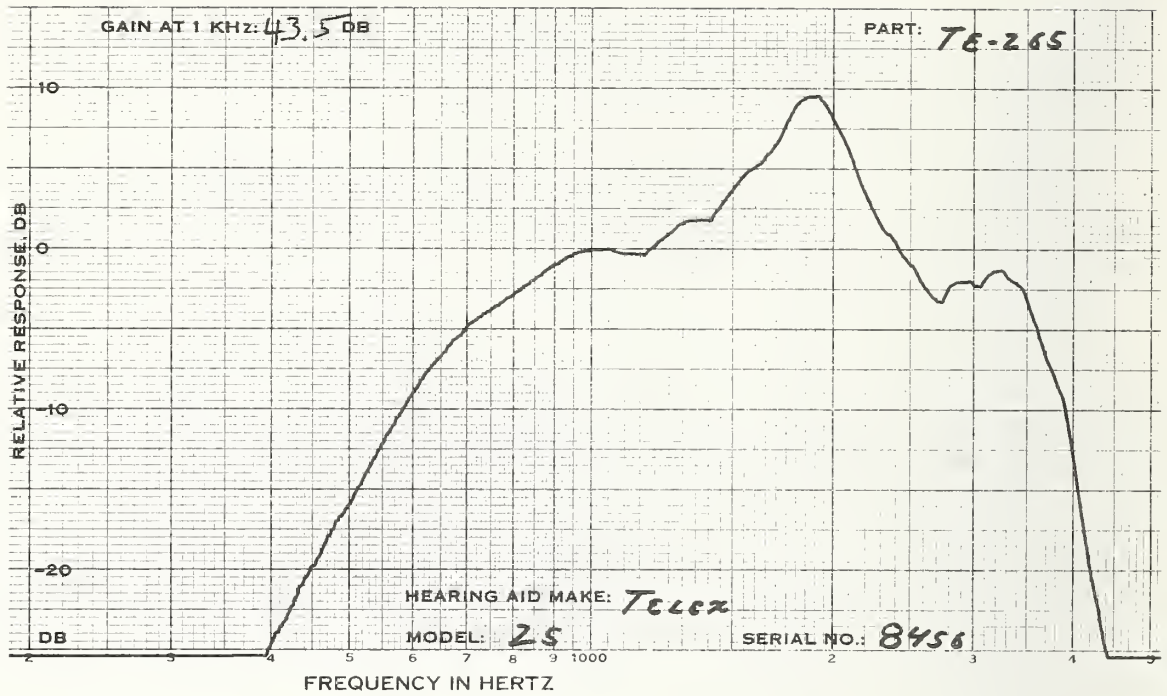
1KHZ GAIN DB	43.5	45.0	42.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	78.0	80.0	78.5
OUTPUT LEVEL DB	119.0	121.0	118.0

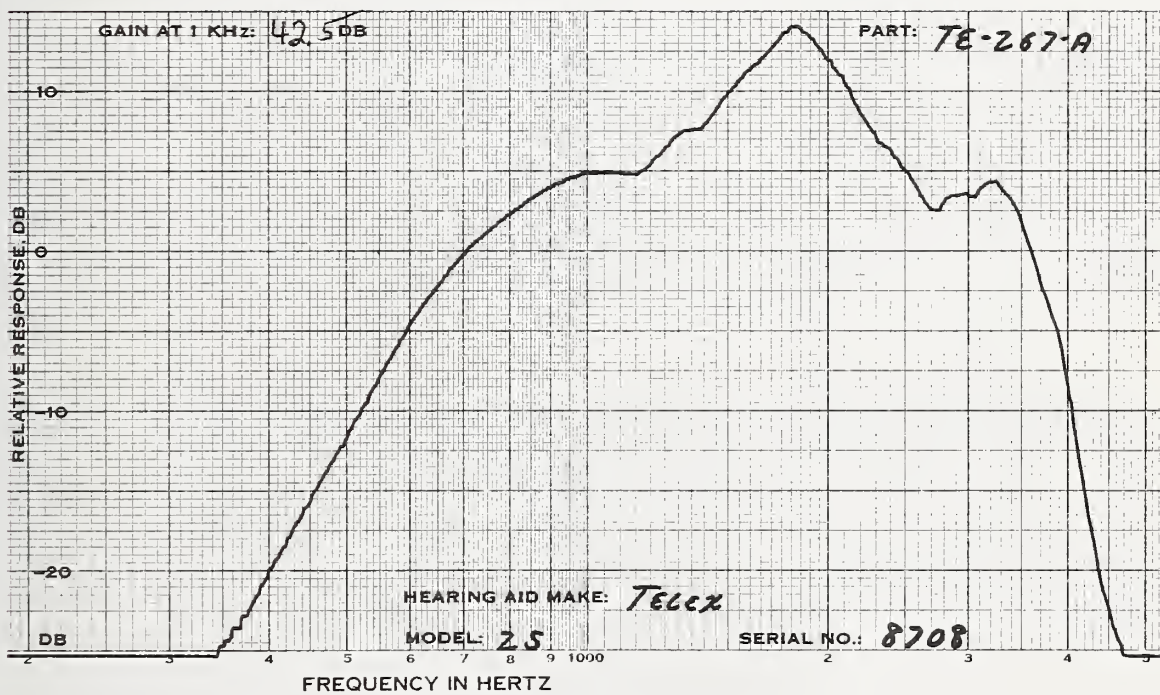
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	43.5(FULL)	45.0(FULL)	42.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	62.0 72.0	64.0 74.0	62.0 72.0
500 HZ %	7 2	20 12	8 4
700 HZ %	4 6	3 11	2 5
900 HZ %	4 7	4 20	5 9
MAX DIST %	7 8	20 21	8 9
FREQ OF MAX DIS	500 940	500 640	500 900
S/N RATIO DB			
1KHZ SIGNAL	42.0	45.0	42.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.1	1.1	1.2
65 DB INPUT	1.2	1.2	1.2
BATTERY VOLTAGE	1.56	1.56	1.57

TE-267, SERIAL # 8528, WAS CONSIDERED DEFECTIVE BECAUSE OF A VERY LOW GAIN, WHICH WAS 20 DB LESS THAN THE OTHERS OF THIS MODEL.







TELEX  
MODEL:70 TONE:H MPO:MAX RECEIVER:35681-004 BATTERY:1015

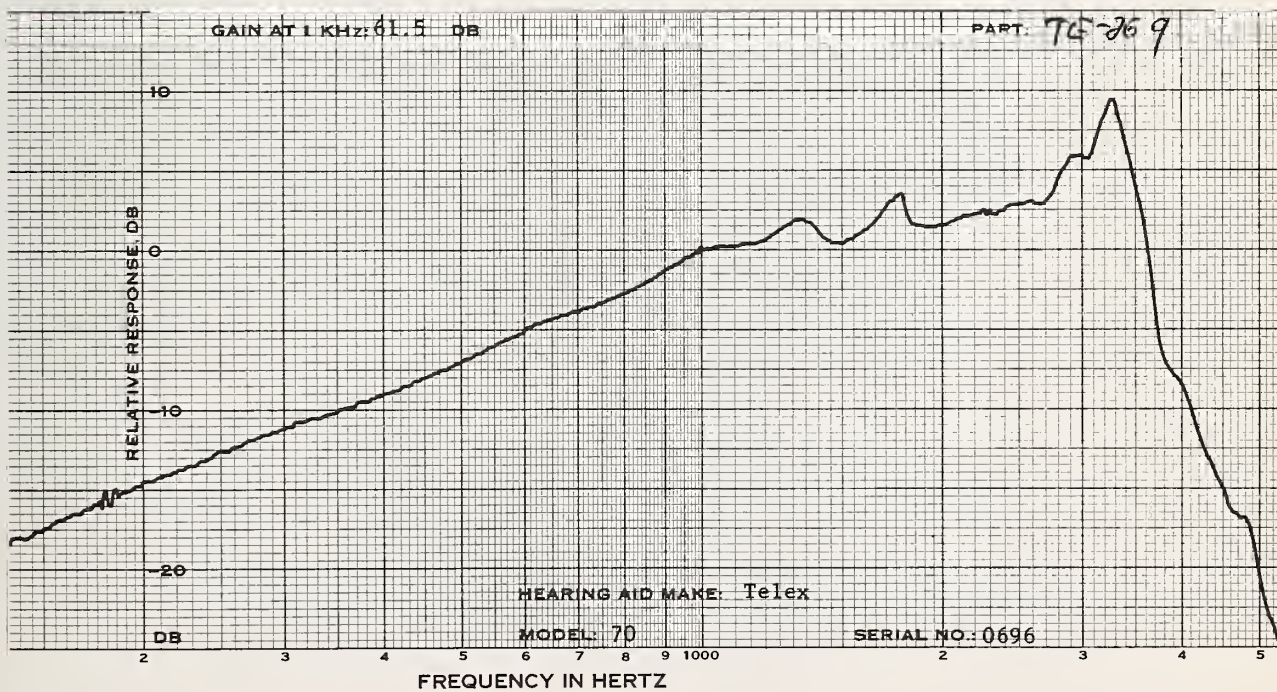
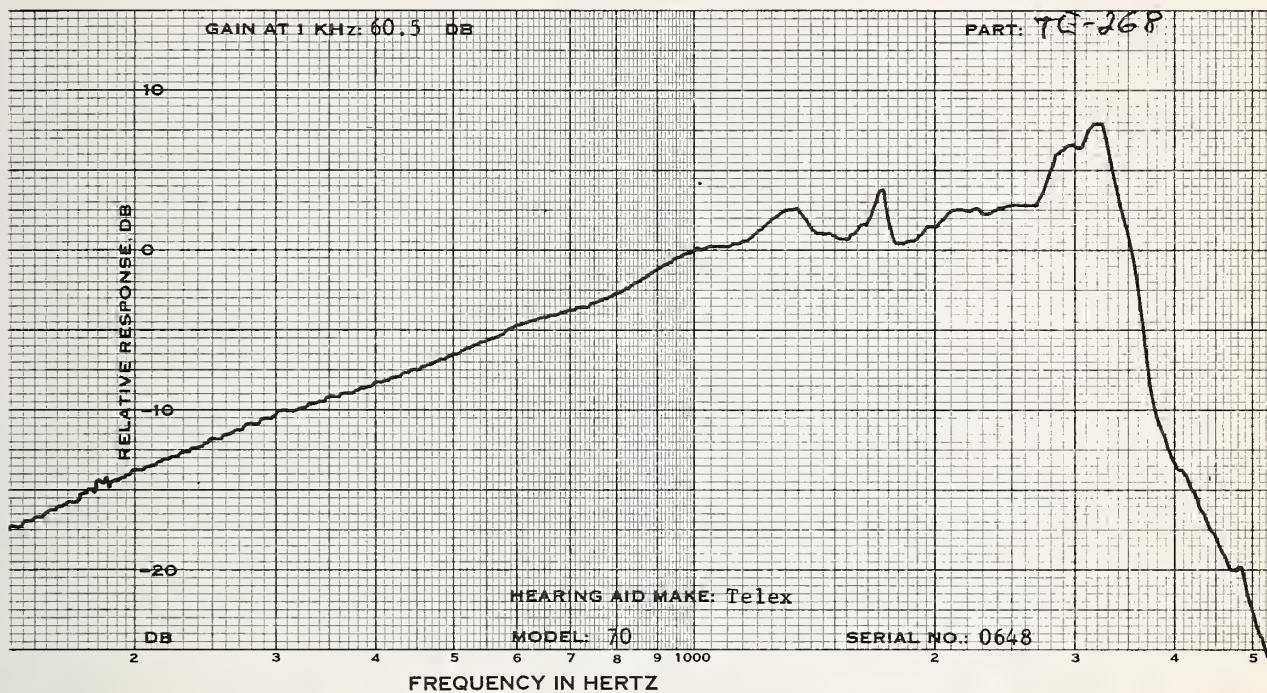
CODE	TE-268	TE-269	TE-270
SERIAL #	0648	0696	0777
DATE		FEB 26, 1974	

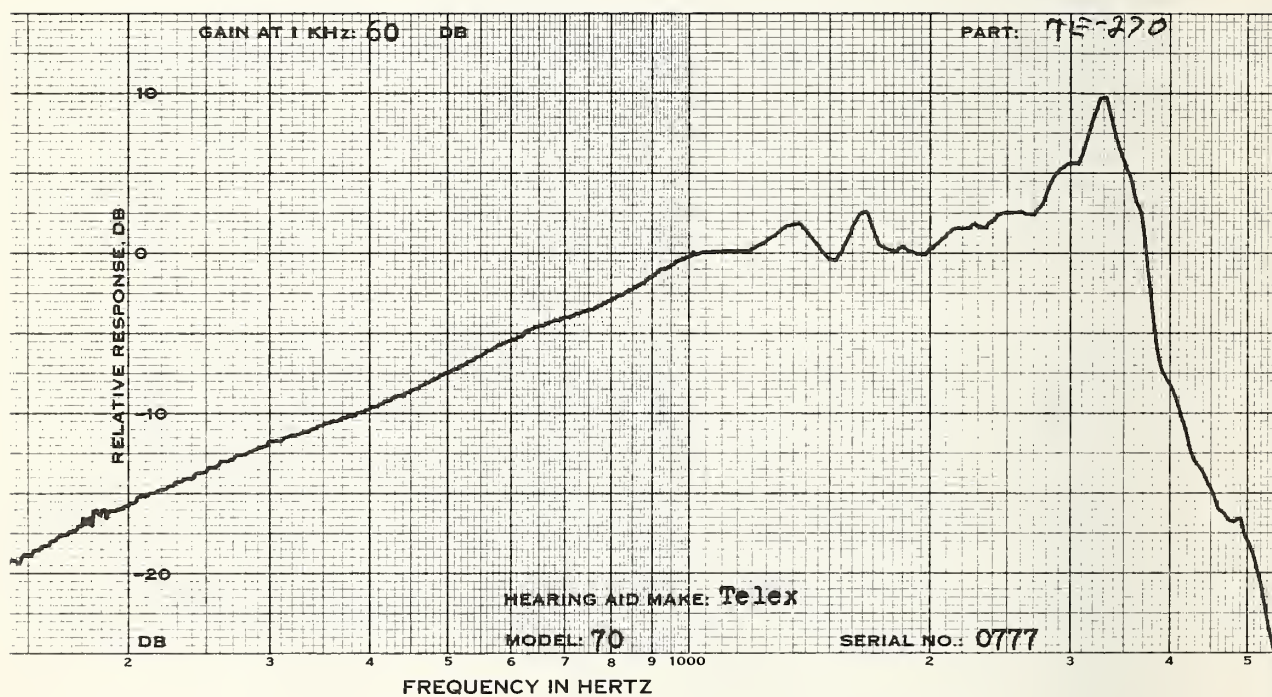
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	66.0	68.0	67.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	68.5	67.0	67.0
OUTPUT LEVEL DB	131.5	132.0	131.5

MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	60.5	61.5	60.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 3	3 5	3 5
700 HZ %	2 2	3 5	3 5
900 HZ %	2 3	3 6	2 5
MAX DIST %	3 3	3 6	4 6
FREQ OF MAX DIS	500 900	900 900	1050 1050
S/N RATIO DB			
1KHZ SIGNAL	38.0	40.5	40.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	*****	8.0	*****
65 DB INPUT	*****	18.0	*****
BATTERY VOLTAGE	*****	1.53	*****

THE BATTERY DRAIN WAS MEASURED FOR ONLY ONE INSTRUMENT  
BECAUSE OF THE DIFICULTY IN ATTACHING TEST LEADS  
IN THE BATTERY COMPARTMENT.







VICON  
MODEL:OE-123 TONE:A TUBING:7/8 BATTERY:S76 OE

CODE	VI-223	VI-224	VI-225
SERIAL #	28320	28326	28493
DATE		APR 26, 1974	

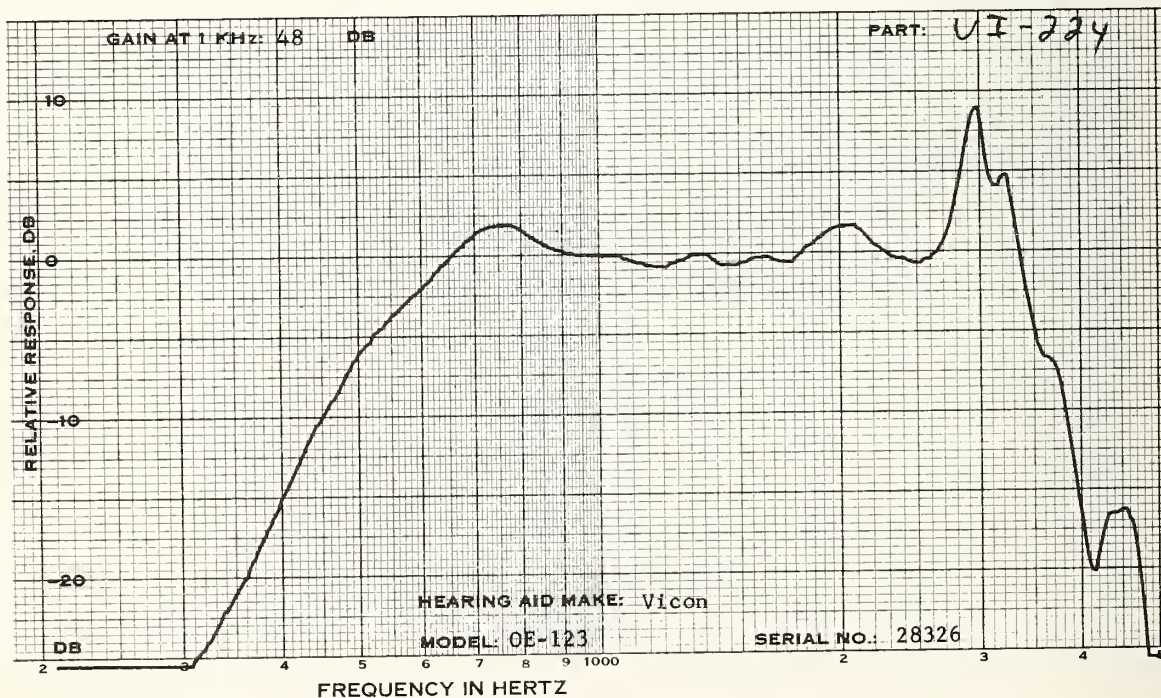
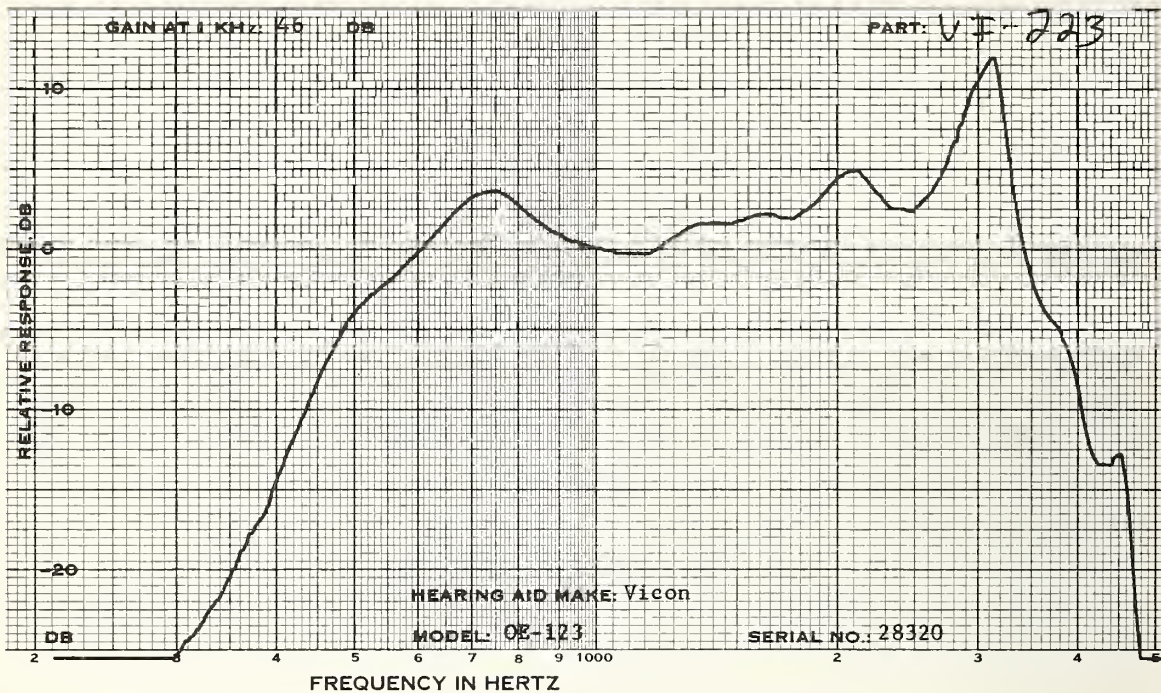
MEASUREMENTS WITH  
FULL VOL CONTROL

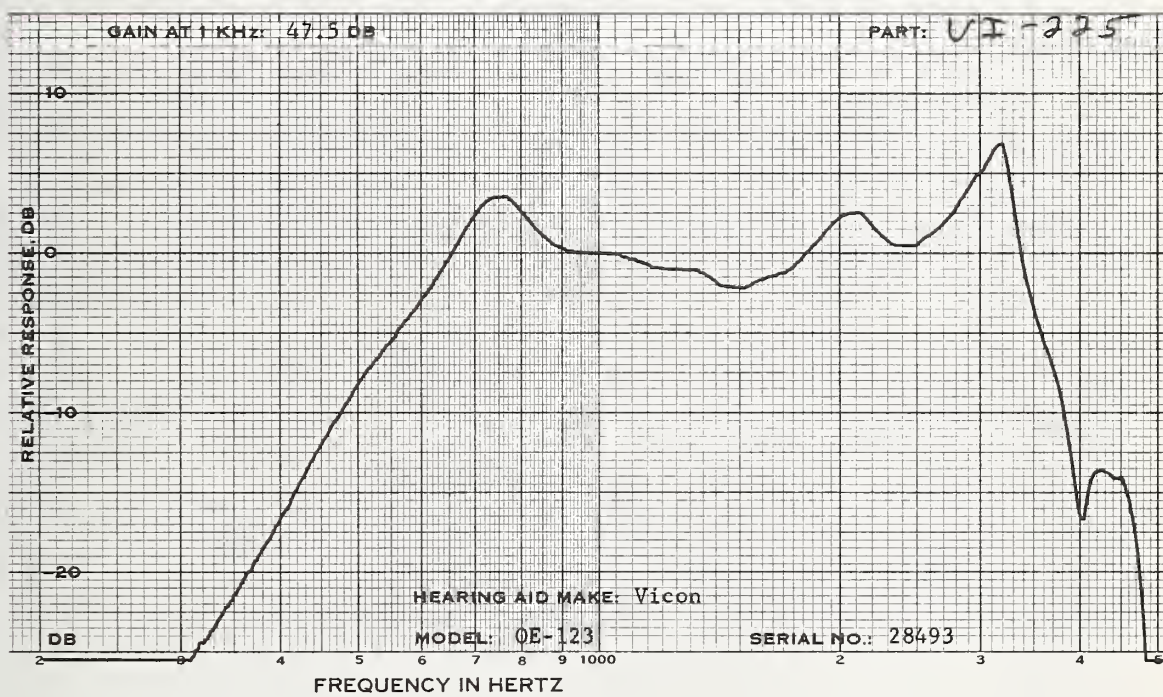
1KHZ GAIN DB	48.5	49.0	51.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	79.0	85.0	76.0
OUTPUT LEVEL DB	120.0	119.5	119.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	46.0	48.0	47.5
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 5	1 6	1 4
700 HZ %	1 2	1 2	1 1
900 HZ %	1 4	1 3	0 3
MAX DIST %	12 58	9 44	8 33
FREQ OF MAX DIS	1550 1540	1430 1580	1560 1580
S/N RATIO DB			
1KHZ SIGNAL	47.5	50.0	47.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.9	2.0	1.8
65 DB INPUT	1.9	2.0	1.8
BATTERY VOLTAGE	1.58	1.57	1.57







VICON  
MODEL:OE-124 TONE:A TUBING:7/8 BATTERY:S76 OE

CODE	VI-226	VI-227	VI-228
SERIAL #	28124	28186	28232
DATE		APR 29, 1974	

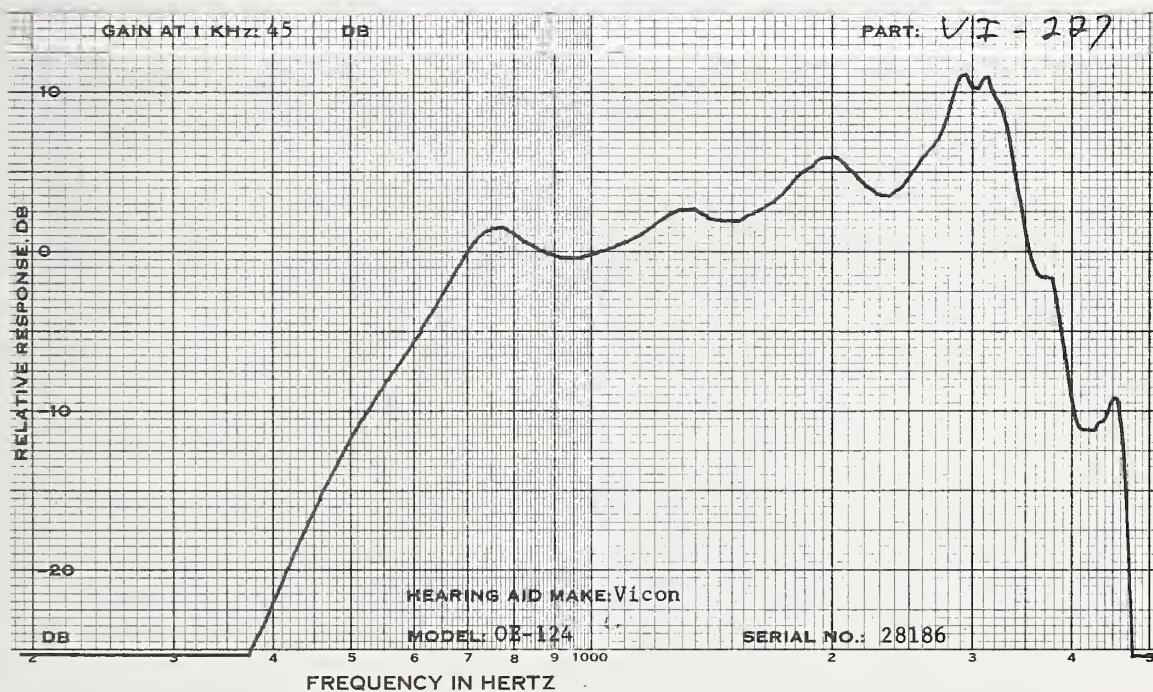
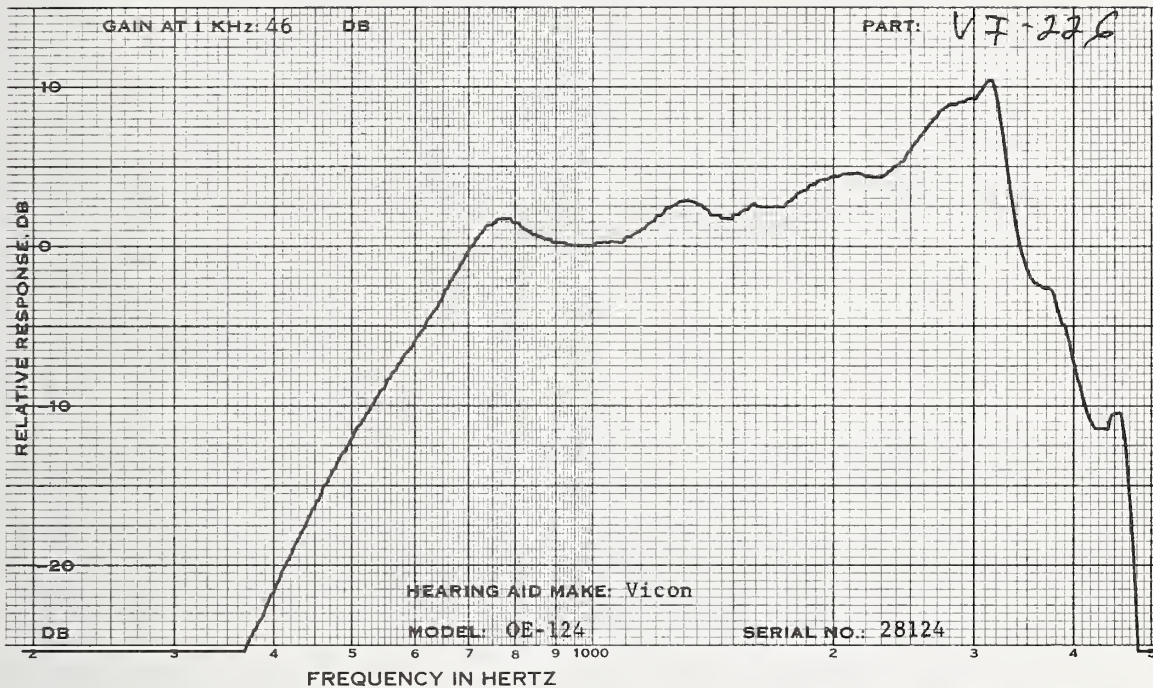
MEASUREMENTS WITH  
FULL VOL CONTROL

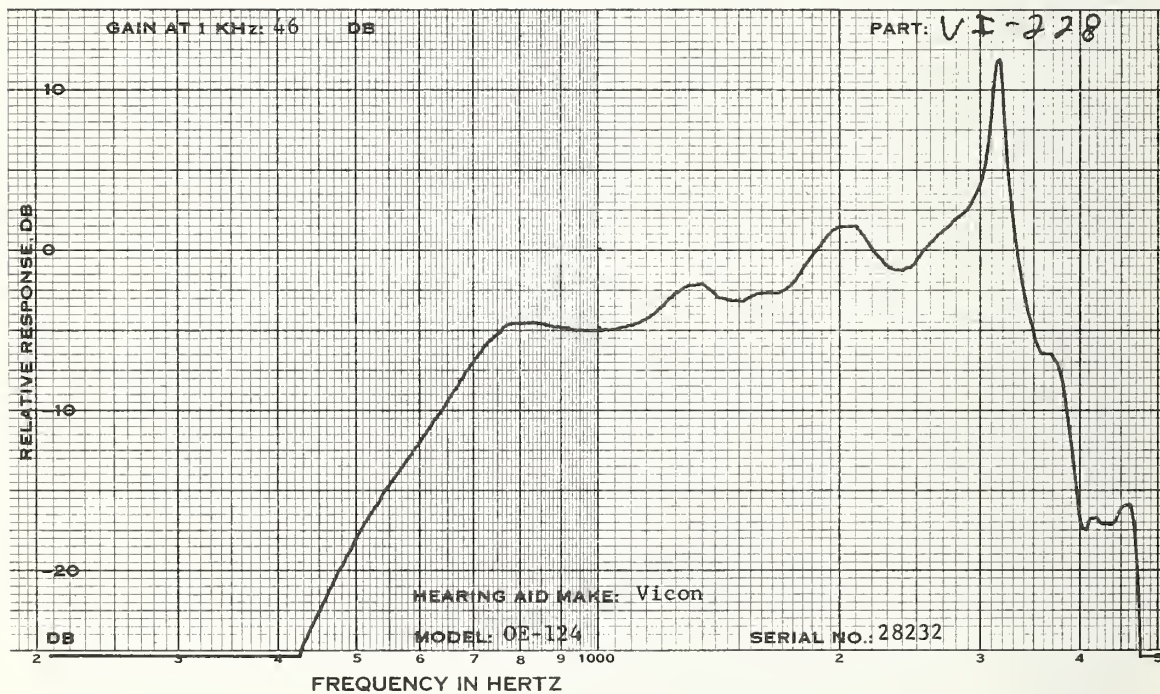
1KHZ GAIN DB	50.0	49.5	48.5
MPO, RANDCM NOISE			
INPUT LEVEL, DB	77.0	77.0	79.5
OUTPUT LEVEL DB	119.0	118.5	119.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	46.0	45.0	46.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 4	4 3	4 3
700 HZ %	1 1	1 1	1 1
900 HZ %	2 3	3 3	2 3
MAX DIST %	5 40	4 20	5 31
FREQ OF MAX DIS	500 1550	500 1570	1040 1560
S/N RATIO DB			
1KHZ SIGNAL	48.0	48.0	47.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.9	1.9	2.0
65 DB INPUT	1.9	1.9	2.0
BATTERY VOLTAGE	1.58	1.57	1.57







VICON HP OE  
 MODEL:OE-132 TONE:NONE TUBING:1 3/8 BATTERY:S13

CODE	VI-229	VI-230	VI-231
SERIAL #	CXP	CYN	CYS
DATE		APR 24, 1974	

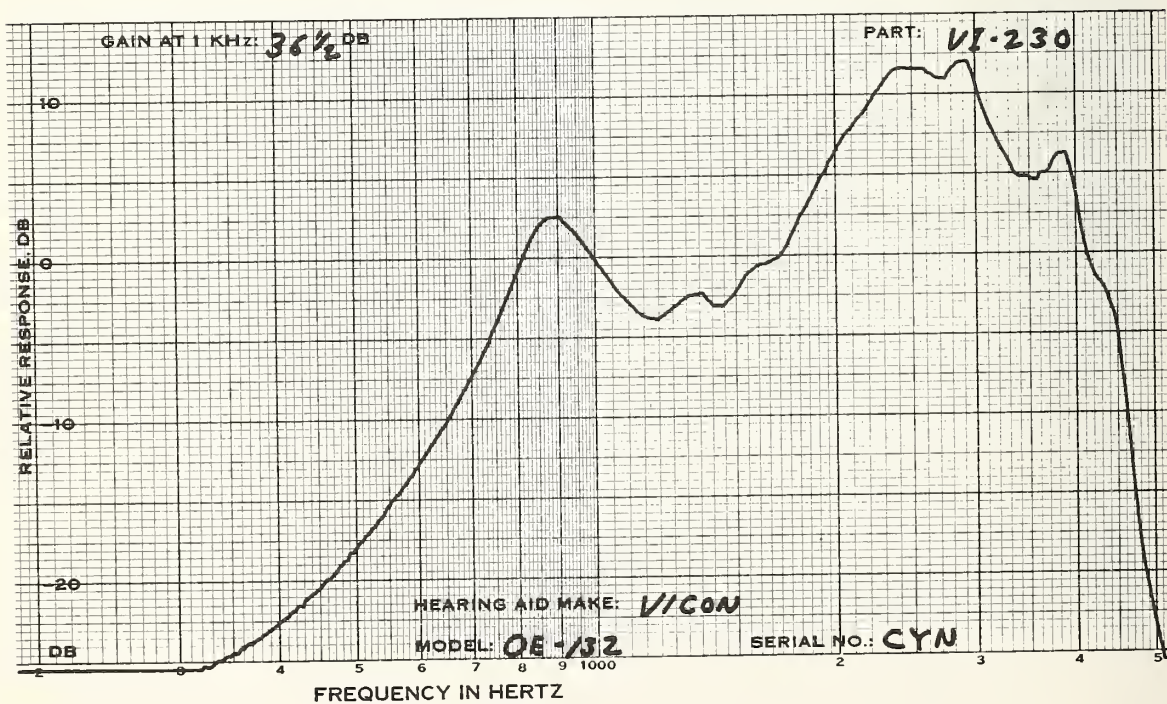
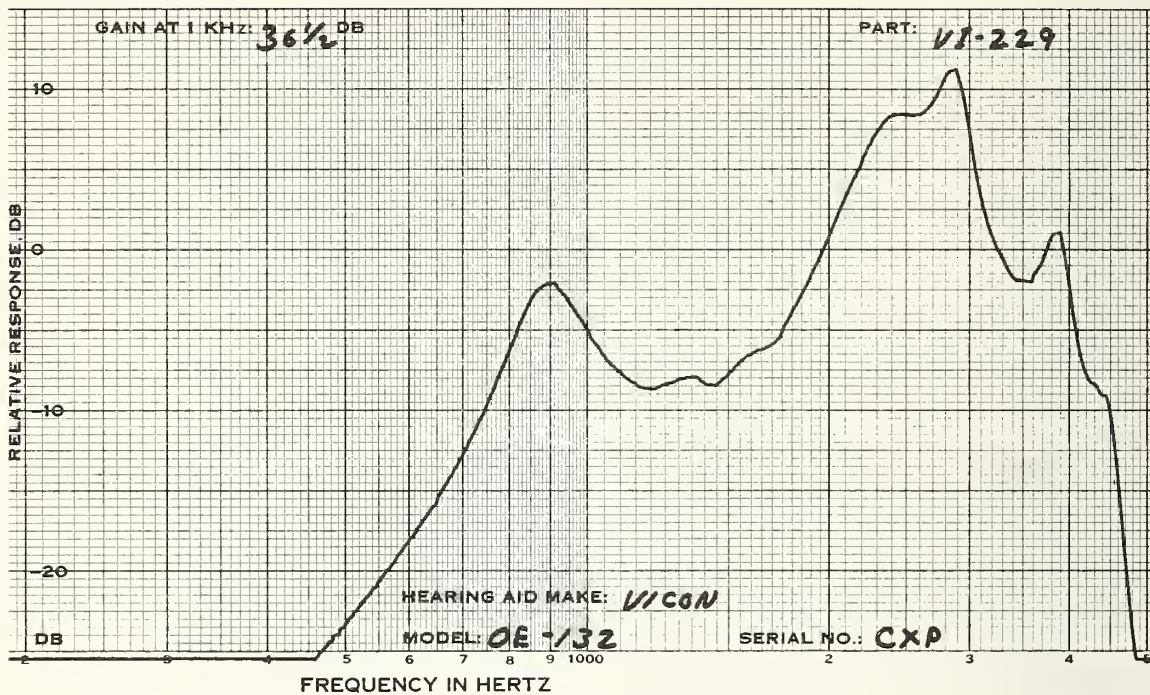
MEASUREMENTS WITH  
 FULL VOL CONTROL

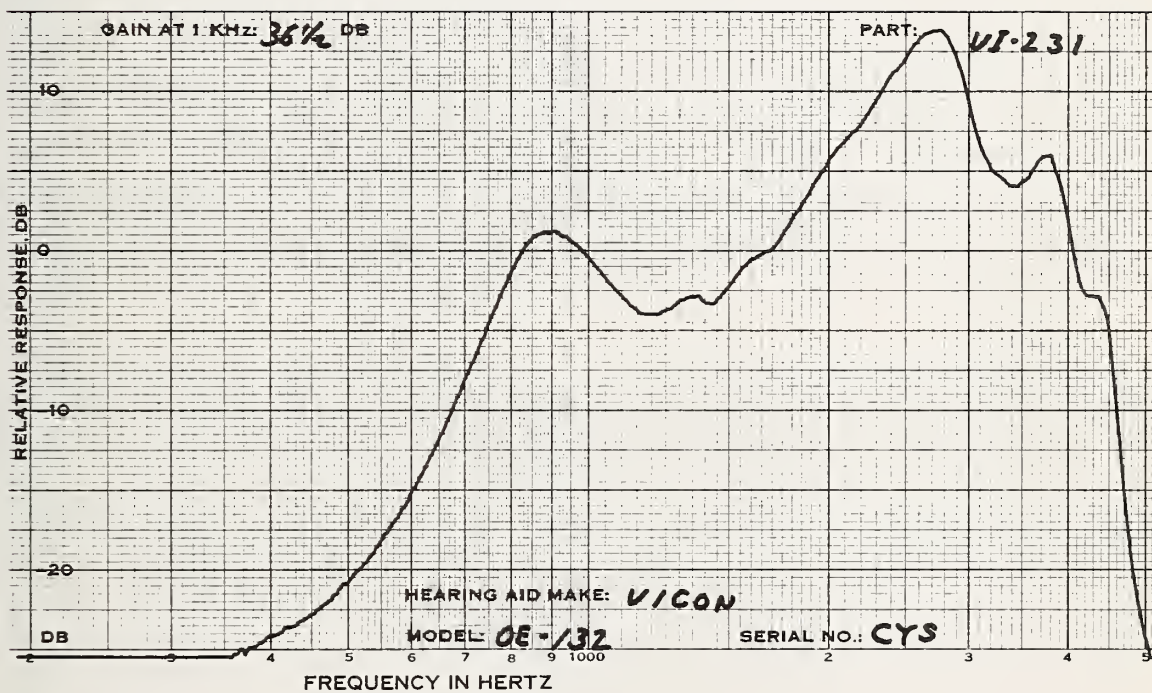
1KHZ GAIN DB	41.0	42.0	41.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	70.5	73.0
OUTPUT LEVEL DB	113.5	112.0	112.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	36.5	36.5	36.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
1000 HZ %	1 1	1 1	1 2
1500 HZ %	4 26	3 21	2 13
2000 HZ %	2 19	2 15	3 14
MAX DIST %	8 33	4 27	6 27
FREQ OF MAX DIS	1400 1890	1260 1840	1280 1880
S/N RATIO DB			
1KHZ SIGNAL	36.5	36.0	36.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.8
65 DB INPUT	.8	.8	.8
BATTERY VOLTAGE	1.58	1.58	1.58
S/N 2KHZ	42.5	43.0	43.0







VICON DIR OE  
 MODEL:OE-139 TONE:NONE TUBING:1 3/8 BATTERY:S13

CODE	VI-232	VI-233	VI-234
SERIAL #	AWY	BBK	BCA
DATE		APR 23, 1974	

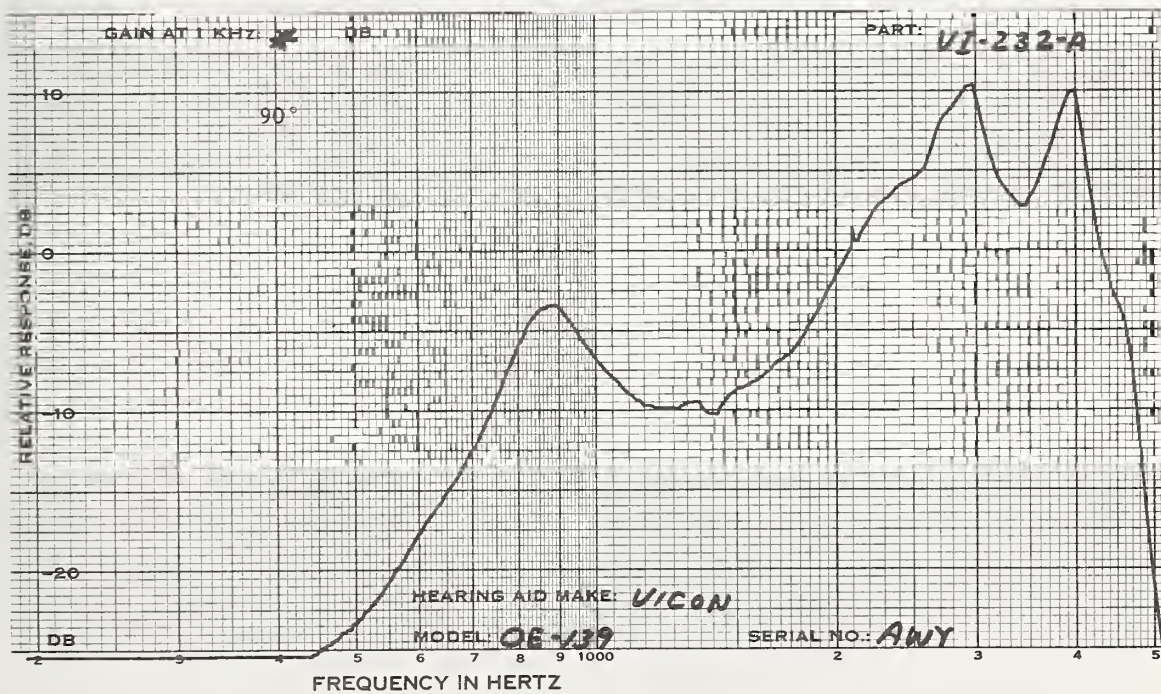
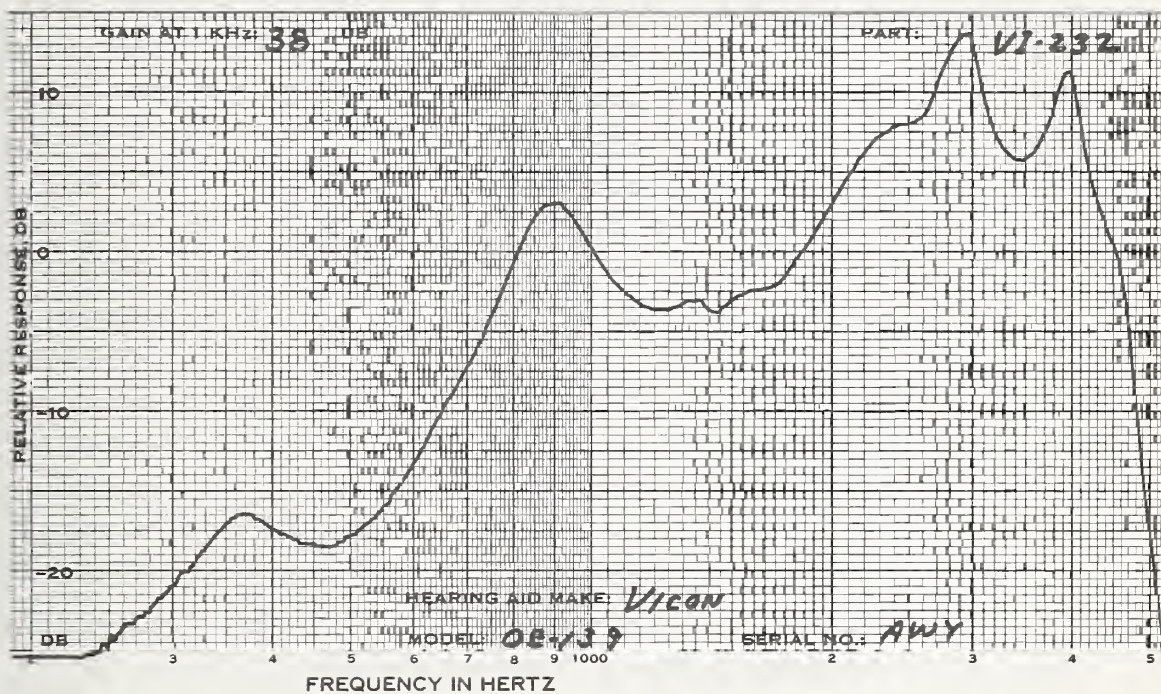
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	38.0	45.0	40.5
MPO, RANDCM NOISE			
INPUT LEVEL, DB	77.0	68.5	74.5
OUTPUT LEVEL DB	112.0	111.5	111.0

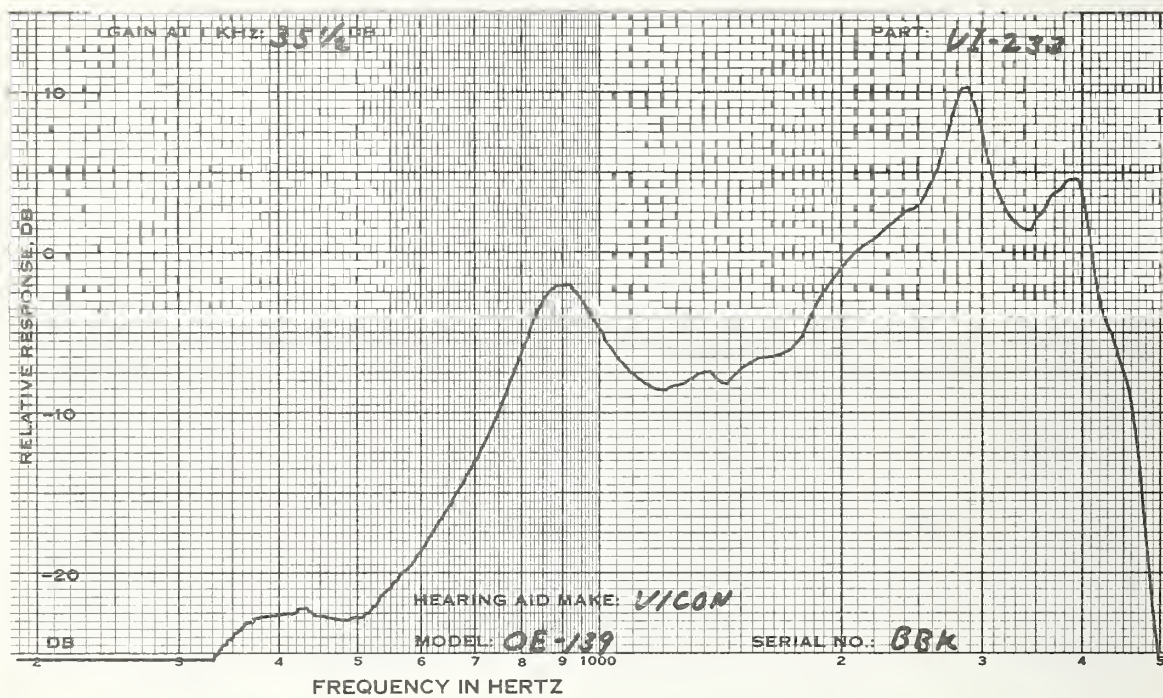
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	38.0(FULL)	35.5	37.5
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	7 4	9 7	5 3
700 HZ %	1 1	1 1	1 0
900 HZ %	1 1	1 2	1 1
MAX DIST %	7 42	9 15	6 32
FREQ OF MAX DIS	500 1460	500 1310	1420 1430
S/N RATIO DB			
1KHZ SIGNAL	40.5	37.5	36.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.7
65 DB INPUT	.8	.8	.7
BATTERY VOLTAGE	1.57	1.57	1.58

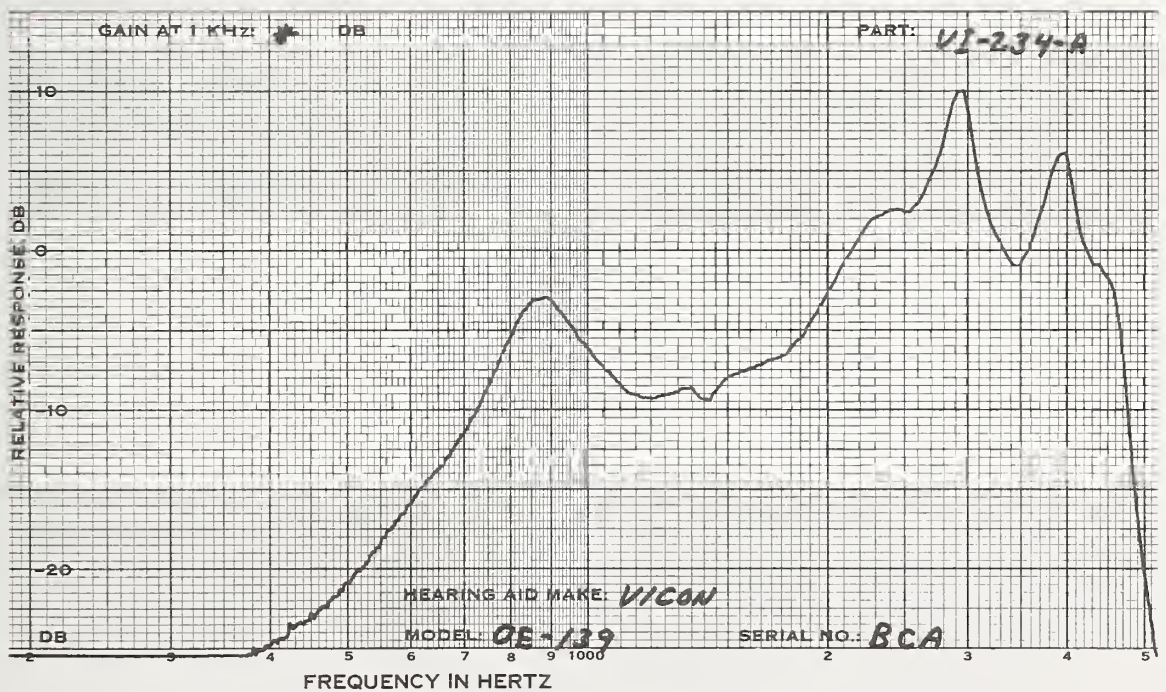
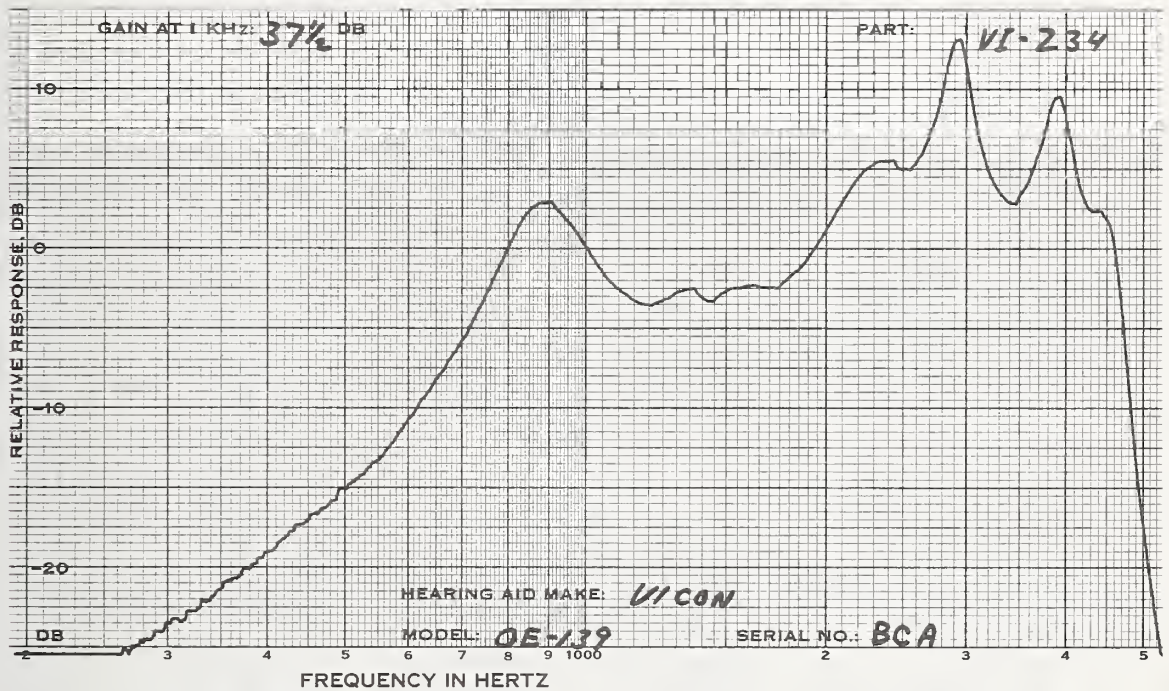














VICON  
MODEL:T-141 TONE:NONE TUBING:1 3/8 BATTERY:S76 EG

CODE	VI-235	VI-236	VI-237
SERIAL #	1170	1181	1225
DATE		APR 25, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	63.0	62.5	63.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	75.0	81.0
OUTPUT LEVEL DB	128.5	128.0	129.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	*****	*****	*****
HARMONIC DIST			
aINPUT LEVEL DB	**** *	**** *	**** *
500 HZ %	*** **	*** **	*** **
700 HZ %	*** **	*** **	*** **
900 HZ %	*** **	*** **	*** **
MAX DIST %	*** **	*** **	*** **
FREQ OF MAX DIS	**** *	**** *	**** *
S/N RATIO DB			
1KHZ SIGNAL	****	****	****
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	*****	*****	*****
65 DB INPUT	*****	*****	*****
BATTERY VOLTAGE	*****	*****	*****

ALL THREE INSTRUMENTS OF THIS MODEL WERE CONSIDERED DEFECTIVE BECAUSE OF A DISCONTINUITY IN THE VOLUME CONTROL AT THE TOP END. ROTATING THE CONTROL DOWN SLIGHTLY CAUSES A DECREASE IN GAIN OF 10 DB FOR VI-235 AND VI-236 AND 7 DB FOR VI-237. INTERMEDIATE GAINS COULD NOT BE ACHIEVED.

VICON  
 MODEL:OE-150 TONE:NONE TUBING:1 3/8 BATTERY:S13

OE

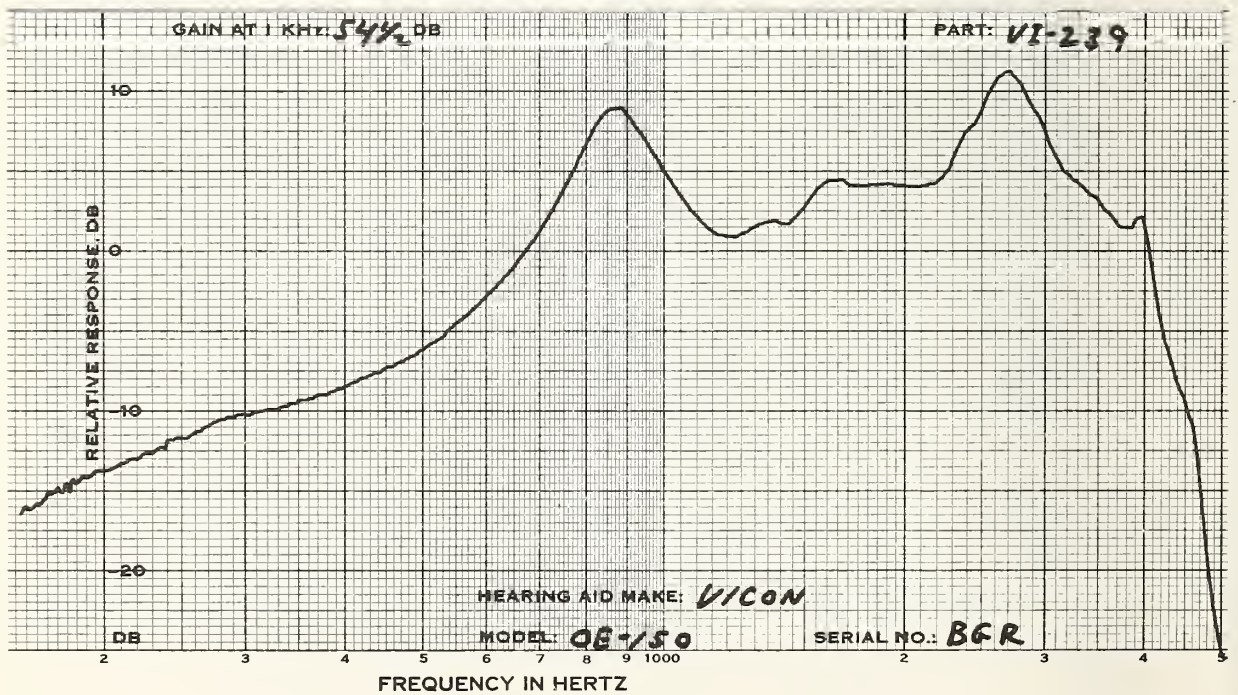
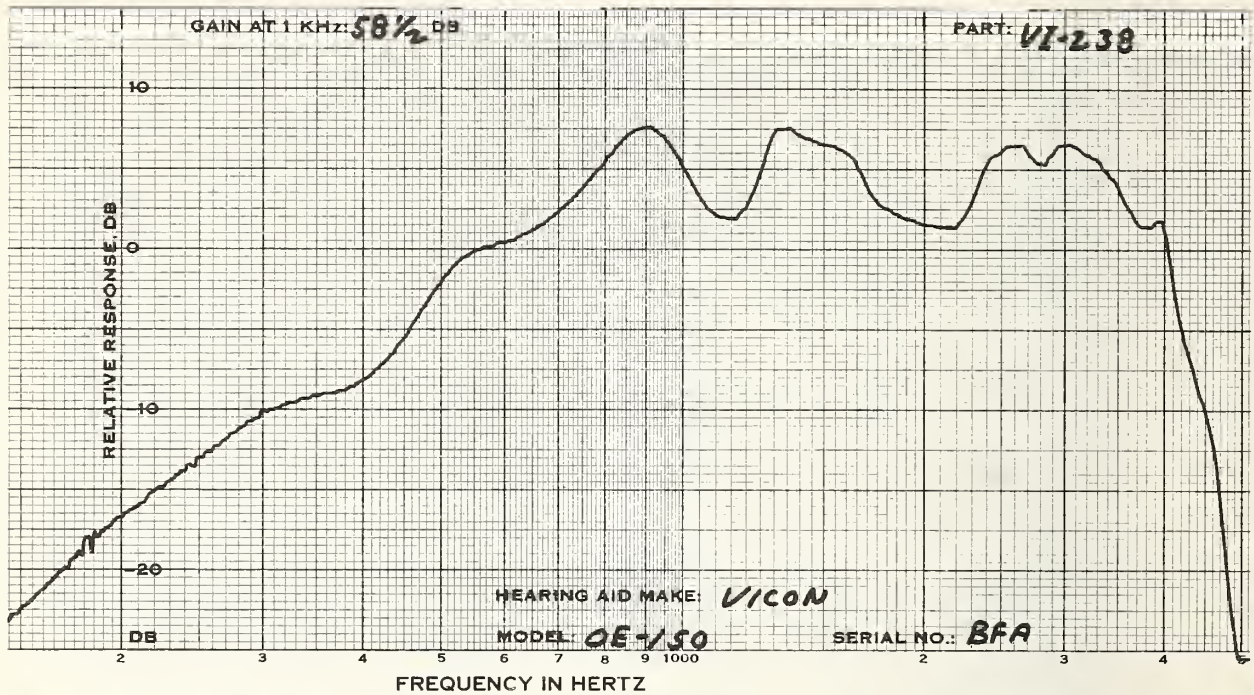
CODE	VI-238	VI-239	VI-240
SERIAL #	BFA	BGR	BGV
DATE		APR 24, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	62.0	60.5	67.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.0	75.5	72.5
OUTPUT LEVEL DB	126.0	126.0	126.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	58.5	54.5	56.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	13 16	7 10	7 11
700 HZ %	7 6	2 3	2 3
900 HZ %	2 4	1 3	1 3
MAX DIST %	26 41	7 32	7 31
FREQ OF MAX DIS	1300 1270	500 1310	500 1280
S/N RATIO DB			
1KHZ SIGNAL	45.0	46.5	46.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.4	2.0	2.1
65 DB INPUT	4.0	3.1	3.2
BATTERY VOLTAGE	1.55	1.56	1.56







VICON DIR OE  
 MODEL:OE-159 TONE:A TUBING:1 3/8 BATTERY:S13

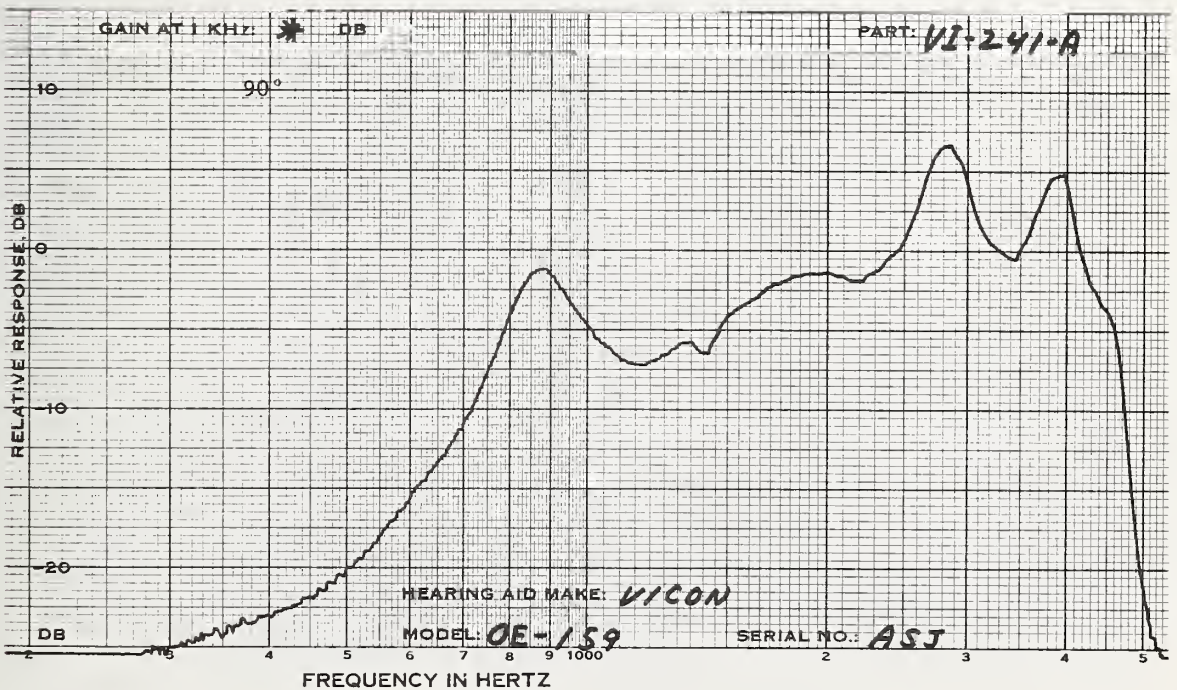
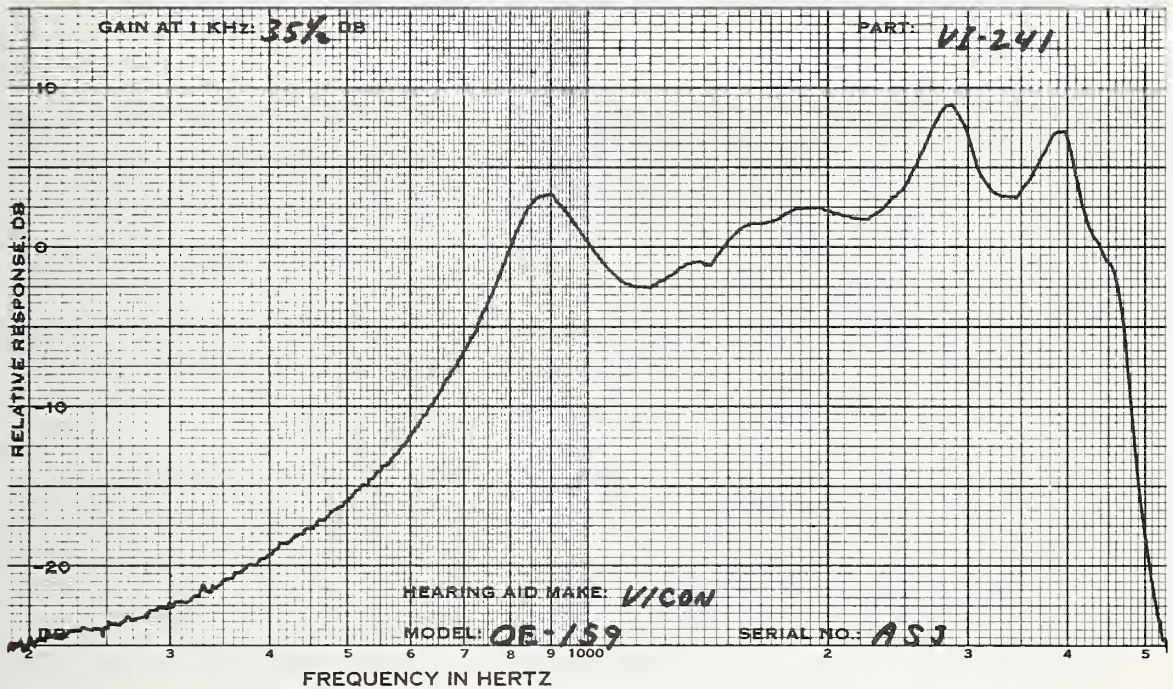
CODE	VI-241	VI-242	VI-243
SERIAL #	ASJ	BBI	BCK
DATE		APR 23, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

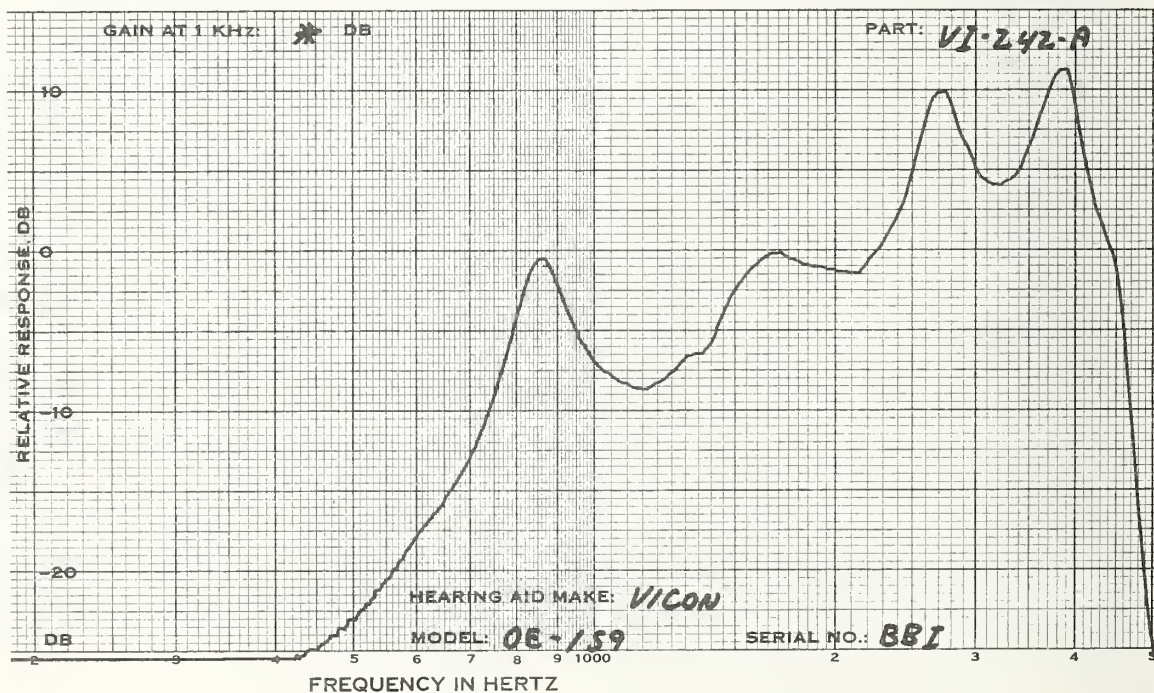
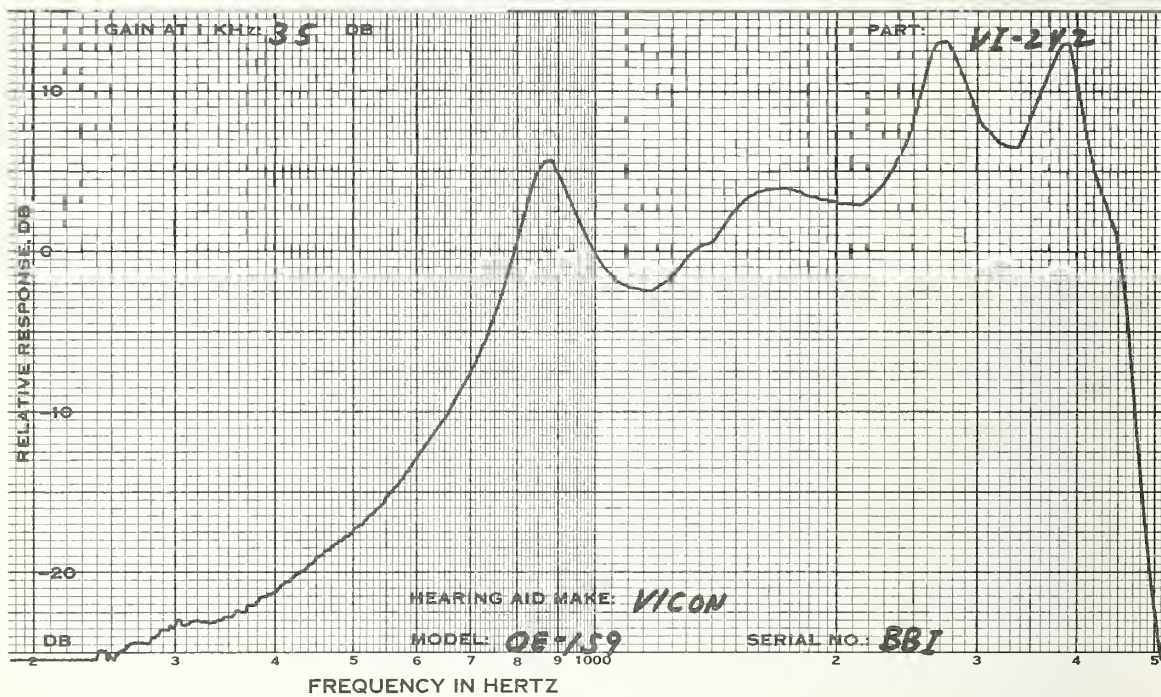
1KHZ GAIN DB	35.5	39.5	38.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	81.0	75.0	78.5
OUTPUT LEVEL DB	109.5	109.5	111.0

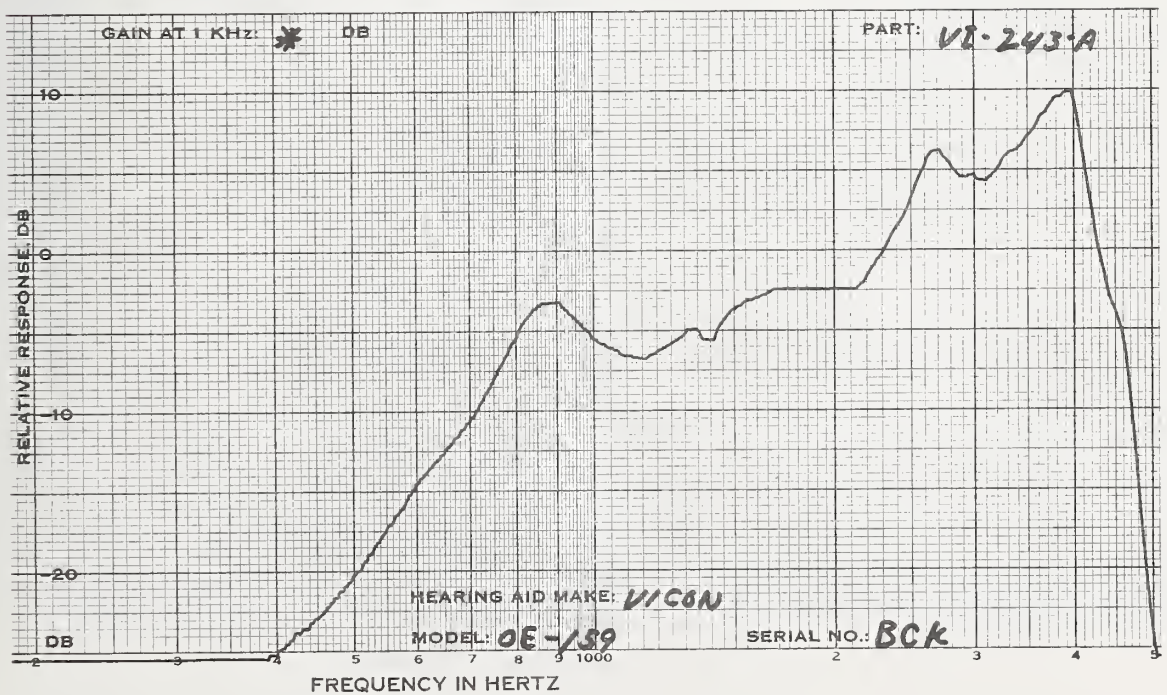
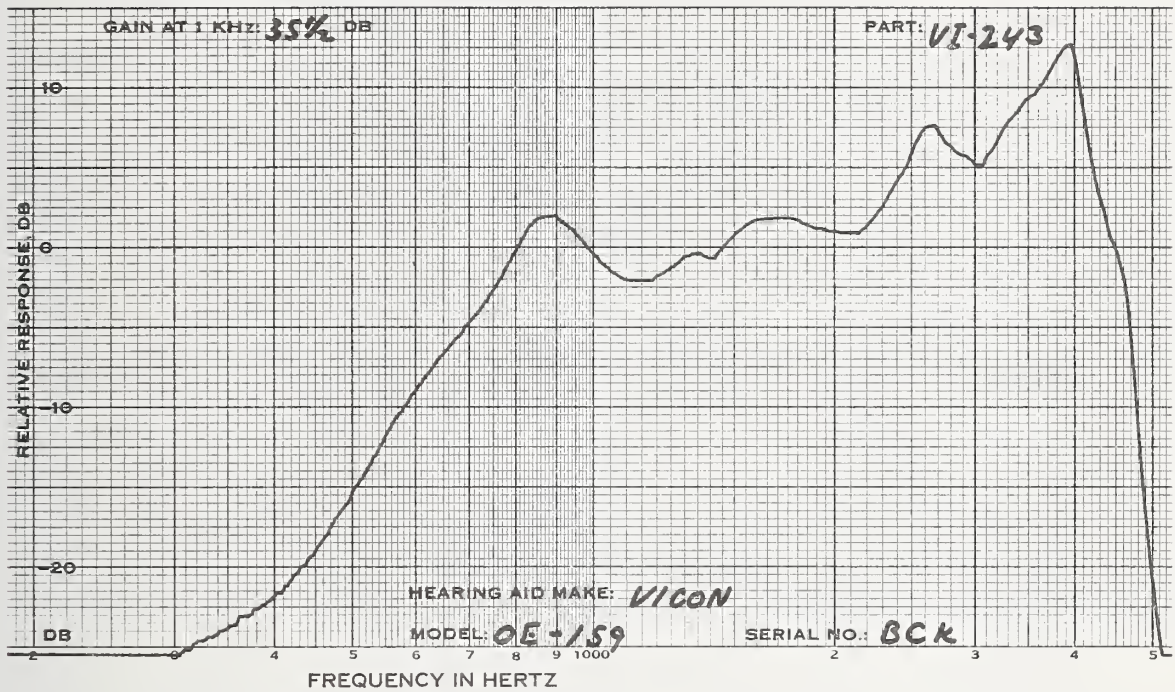
MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	35.5(FULL)	35.0	35.5
HARMONIC DIST			
@INPUT LEVEL DB	61.5 71.5	60.0 70.0	60.0 70.0
500 HZ %	8 3	8 4	6 2
700 HZ %	2 1	2 1	2 1
900 HZ %	1 0	1 1	1 1
MAX DIST %	8 9	8 12	6 16
FREQ OF MAX DIS	500 1540	500 1500	500 1550
S/N RATIO DB			
1KHZ SIGNAL	31.5	37.0	36.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.7
65 DB INPUT	.8	.8	.7
BATTERY VOLTAGE	1.58	1.58	1.58











WIDEX  
MODEL:45 TONE:H RECEIVER:AFAO BATTERY:401

OB

CODE	WI-082	WI-083	WI-084
SERIAL #	605665	605673	605713
DATE		FEB 2, 1974	

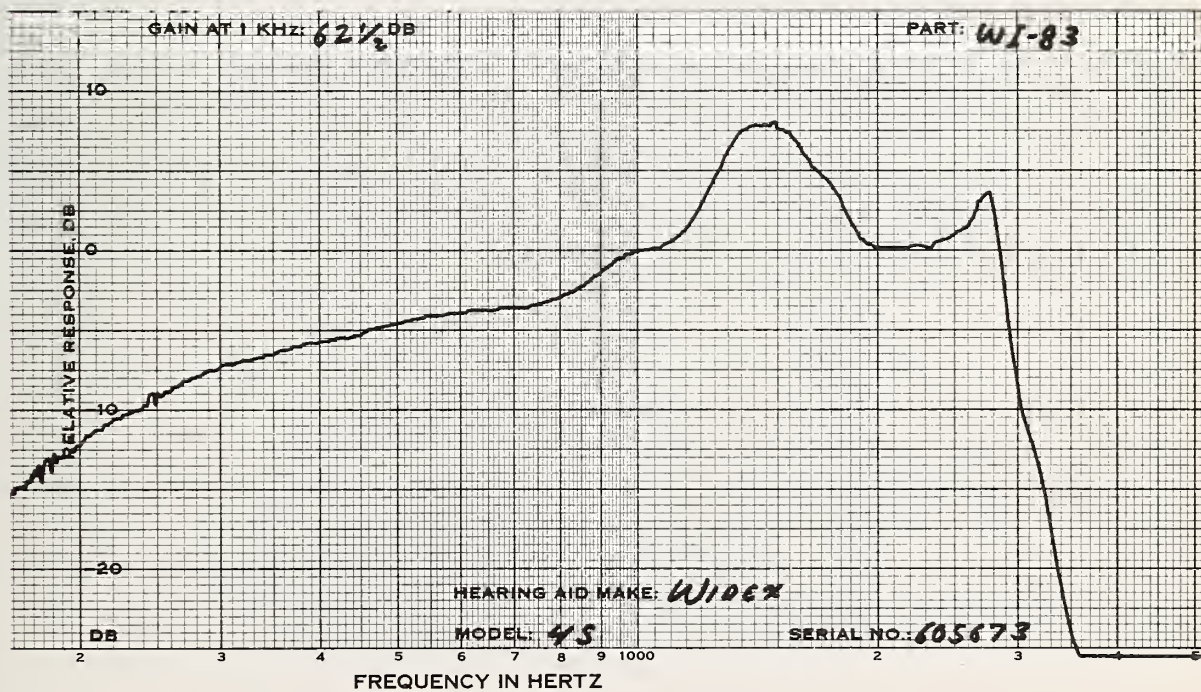
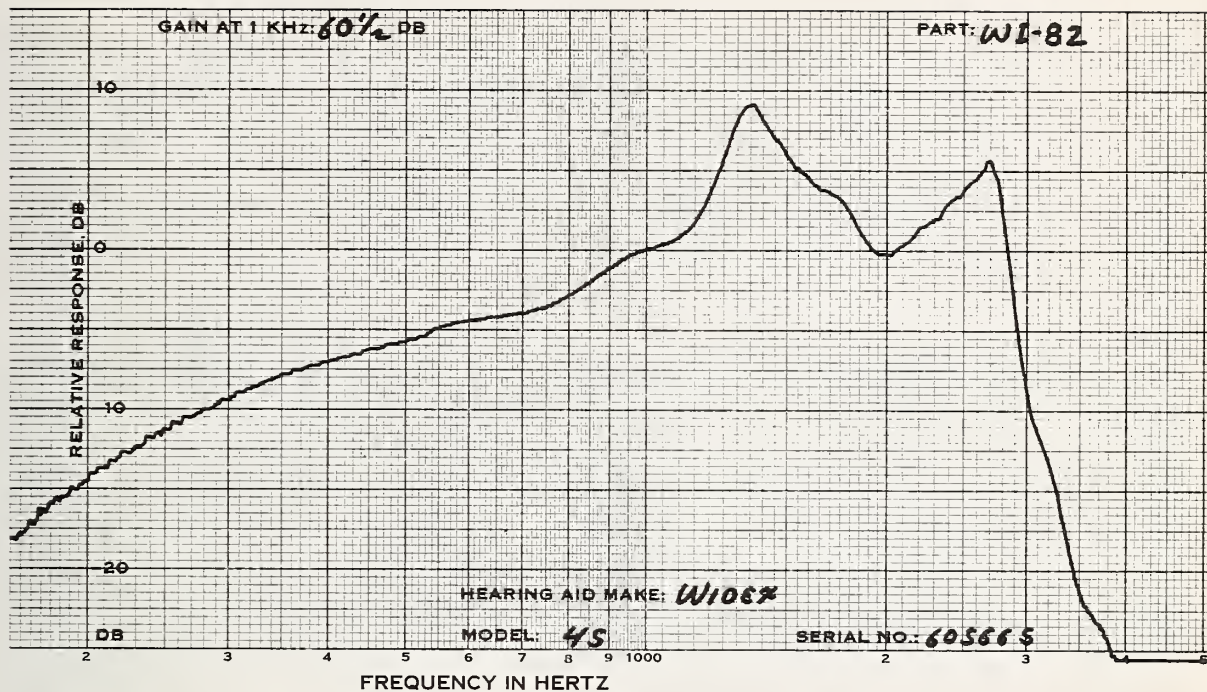
MEASUREMENTS WITH  
FULL VOL CONTROL

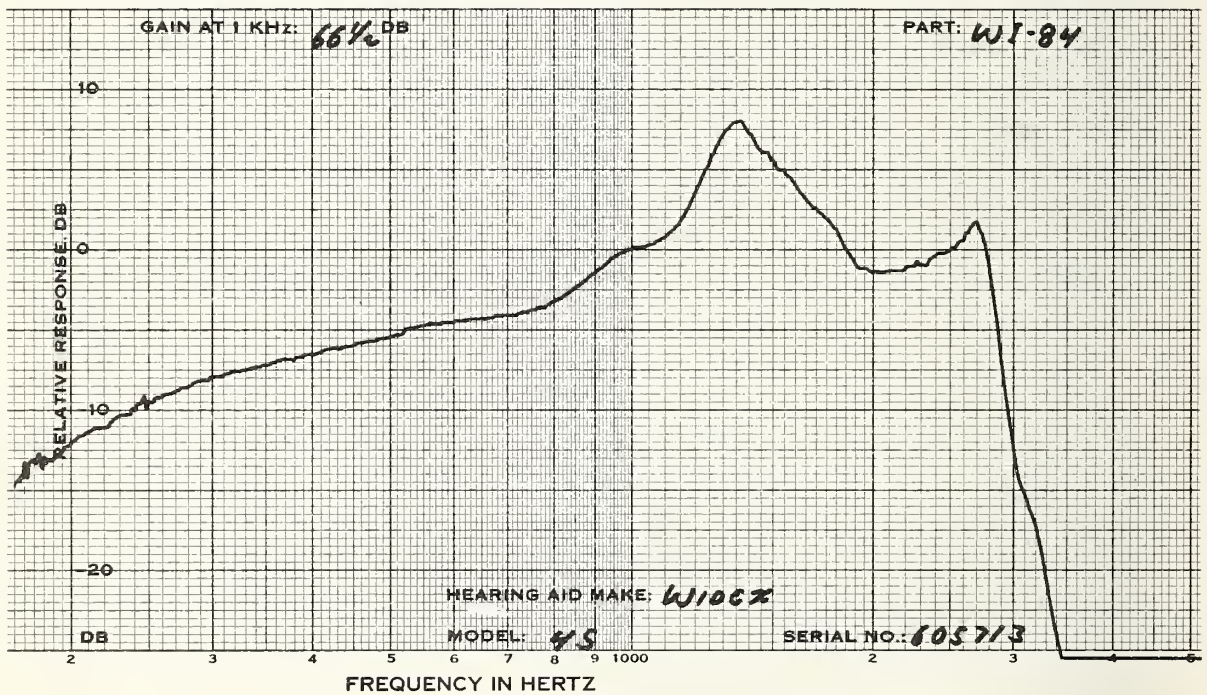
1KHZ GAIN DB	60.5	69.5	72.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	82.5	68.0	69.0
OUTPUT LEVEL DB	137.0	135.0	137.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	60.5(FULL)	62.5	66.5
HARMONIC DIST			
@INPUT LEVEL DB	65.0 75.0	60.0 70.0	60.0 70.0
500 HZ %	7 7	10 9	6 6
700 HZ %	9 11	15 16	7 8
900 HZ %	3 4	5 4	2 3
MAX DIST %	10 12	17 16	8 9
FREQ OF MAX DIS	660 660	750 700	650 660
S/N RATIO DB			
1KHZ SIGNAL	29.0	42.5	42.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.5	4.0	4.5
65 DB INPUT	10.0	14.4	14.5
BATTERY VOLTAGE	1.39	1.38	1.39







WIDEX  
MODEL:52 TONE:NONE TUBING:3/4 BATTERY:S76 OE

CODE	WI-085	WI-086	WI-087
SERIAL #	632191	63014	638894
DATE		JAN 18, 1974	

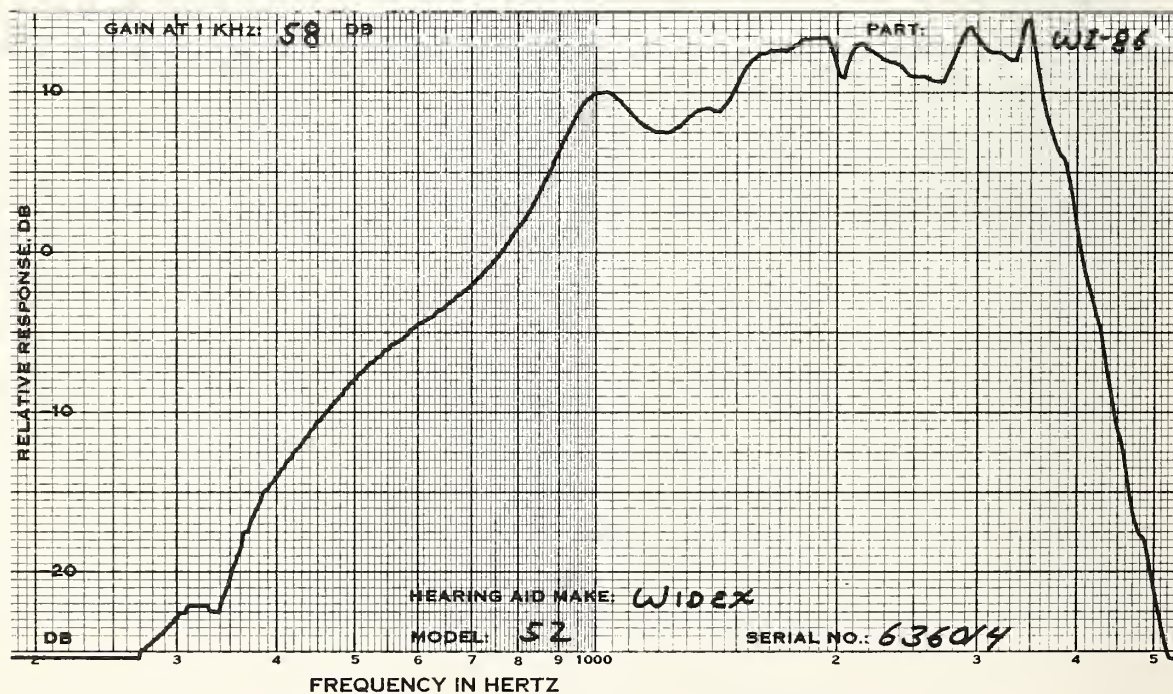
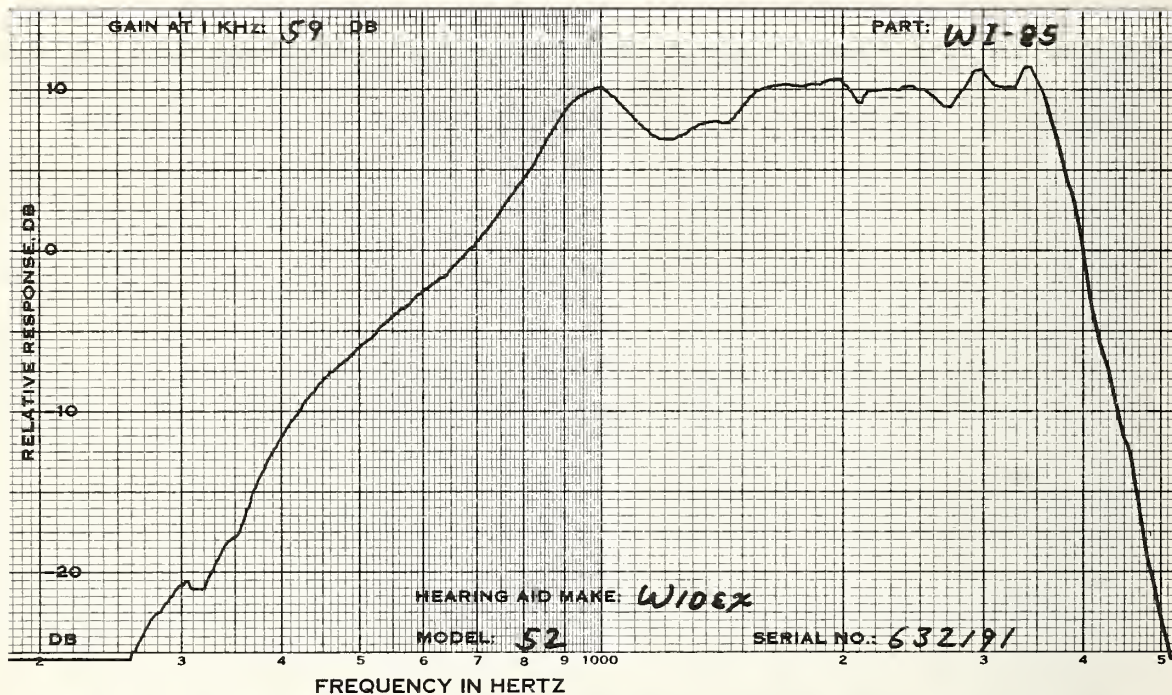
MEASUREMENTS WITH  
FULL VOL CONTROL

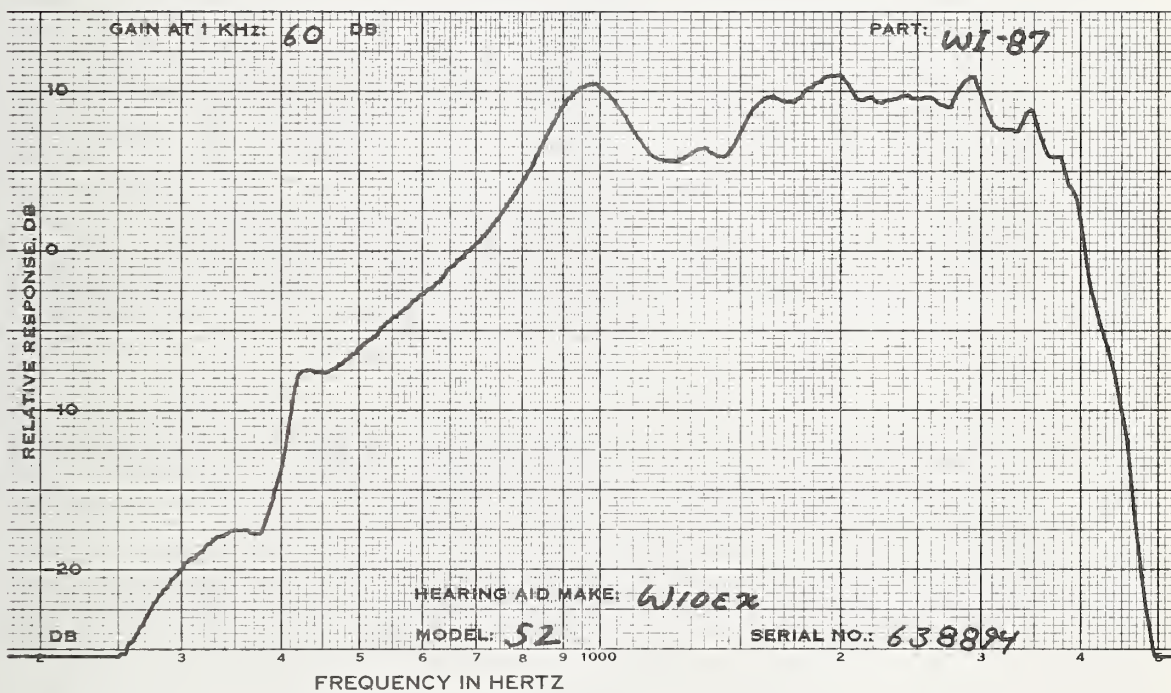
1KHZ GAIN DB	59.0	58.0	62.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	81.5	80.0
OUTPUT LEVEL DB	128.0	127.5	128.5

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	59.0(FULL)	58.0(FULL)	60.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	10 11	7 14	9 7
700 HZ %	5 7	7 10	4 4
900 HZ %	3 3	3 5	2 4
MAX DIST %	10 11	7 14	9 11
FREQ OF MAX DIS	500 500	700 500	500 2000
S/N RATIO DB			
1KHZ SIGNAL	50.0	49.0	50.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.4	2.0	2.1
65 DB INPUT	3.4	3.3	3.1
BATTERY VOLTAGE	1.53	1.53	1.53







WIDEX  
 MODEL:85 TONE:N,CW TUBING:3/4 BATTERY:675 OE HP

CODE	WI-088	WI-089	WI-090
SERIAL #	23118	23175	49953
DATE		JAN 17, 1974	

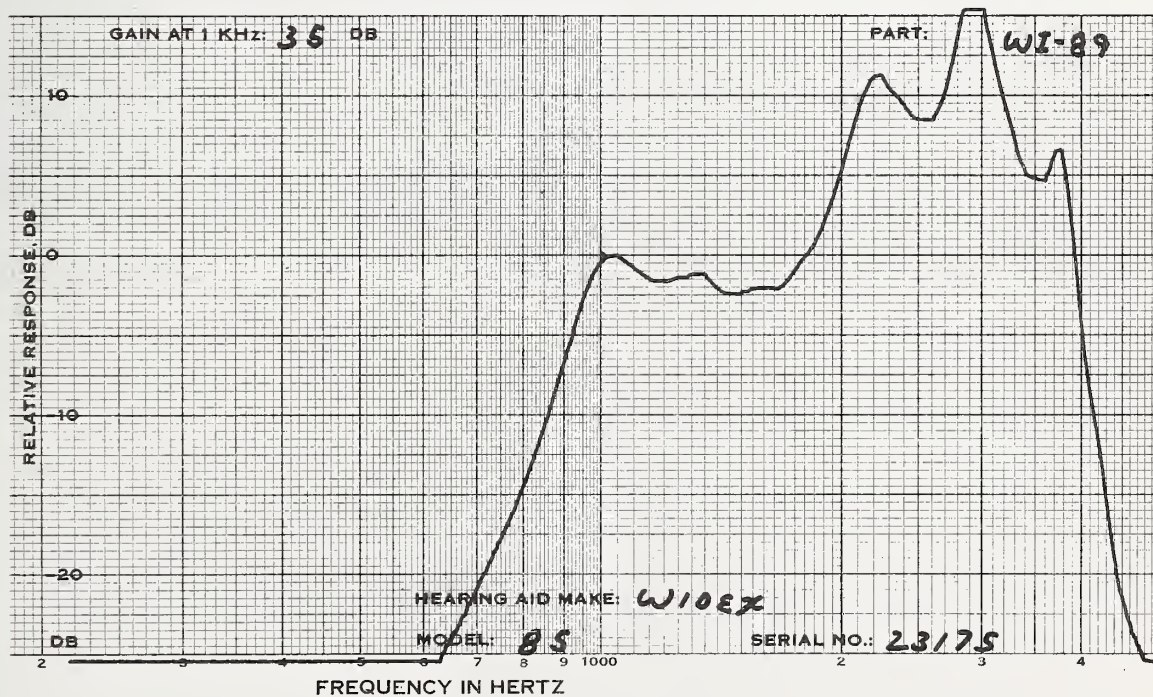
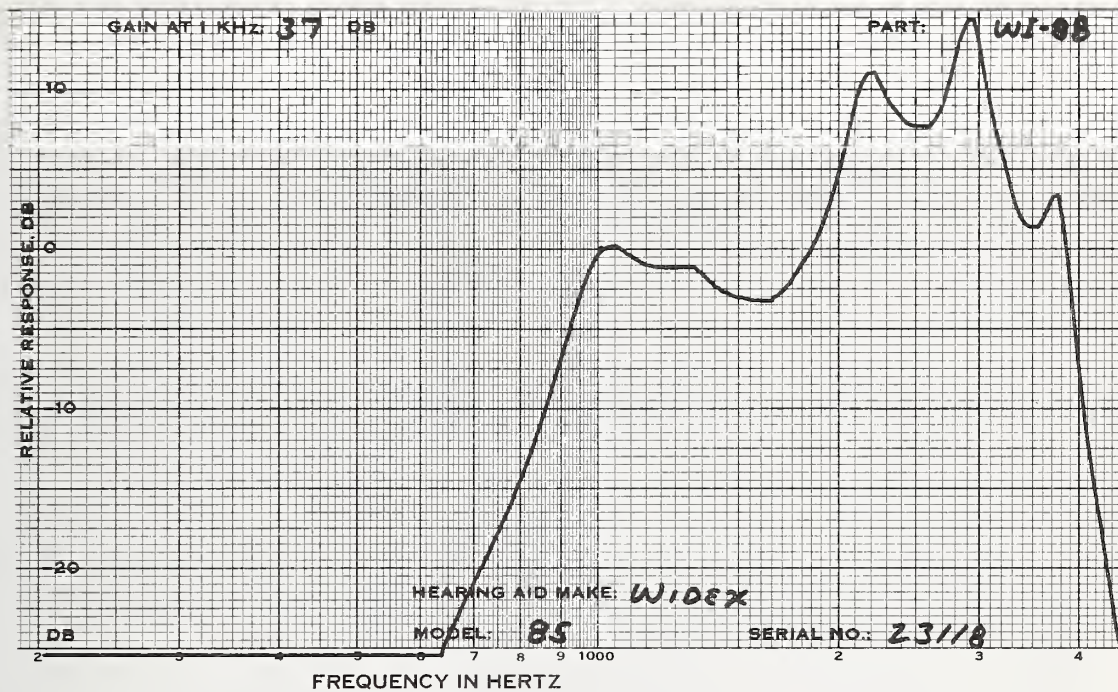
MEASUREMENTS WITH  
 FULL VOL CONTROL

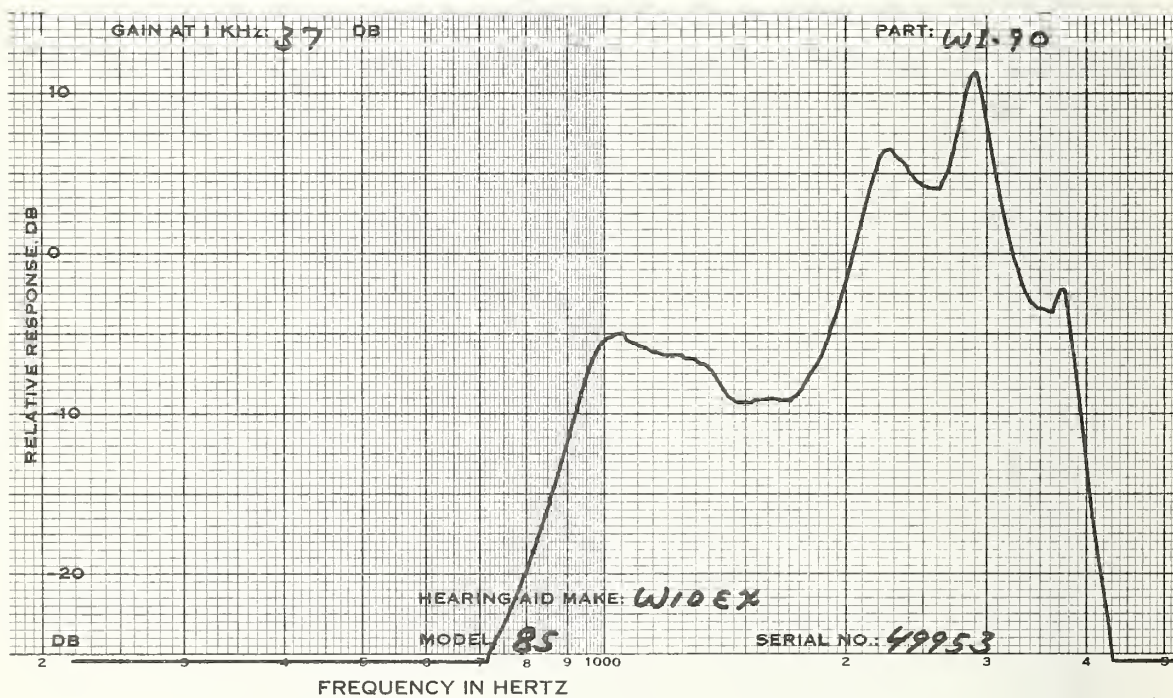
1KHZ GAIN DB	37.0	35.0	37.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	88.0	88.0	87.0
OUTPUT LEVEL DB	120.0	120.0	120.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	37.0(FULL)	35.0(FULL)	37.0(FULL)
HARMONIC DIST			
2INPUT LEVEL DB	68.0 78.0	68.0 78.0	68.0 78.0
1000 HZ %	1 1	1 1	1 1
1500 HZ %	3 18	3 2	4 6
2000 HZ %	0 10	1 4	0 7
MAX DIST %	4 19	4 8	6 18
FREQ OF MAX DIS	1470 1450	1460 1890	1420 1880
S/N RATIO DB			
1KHZ SIGNAL	38.5	37.0	38.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.4	1.4	1.4
65 DB INPUT	1.4	1.4	1.4
BATTERY VOLTAGE	1.35	1.36	1.37
S/N 2KHZ	44.5	43.0	42.5







WIDEX  
MODEL:105 TONE: CW TUBING: 3/4 BATTERY: S13 OE

CODE	WI-091	WI-092	WI-093
SERIAL #	68639	68777	69788
DATE		JAN 18, 1974	

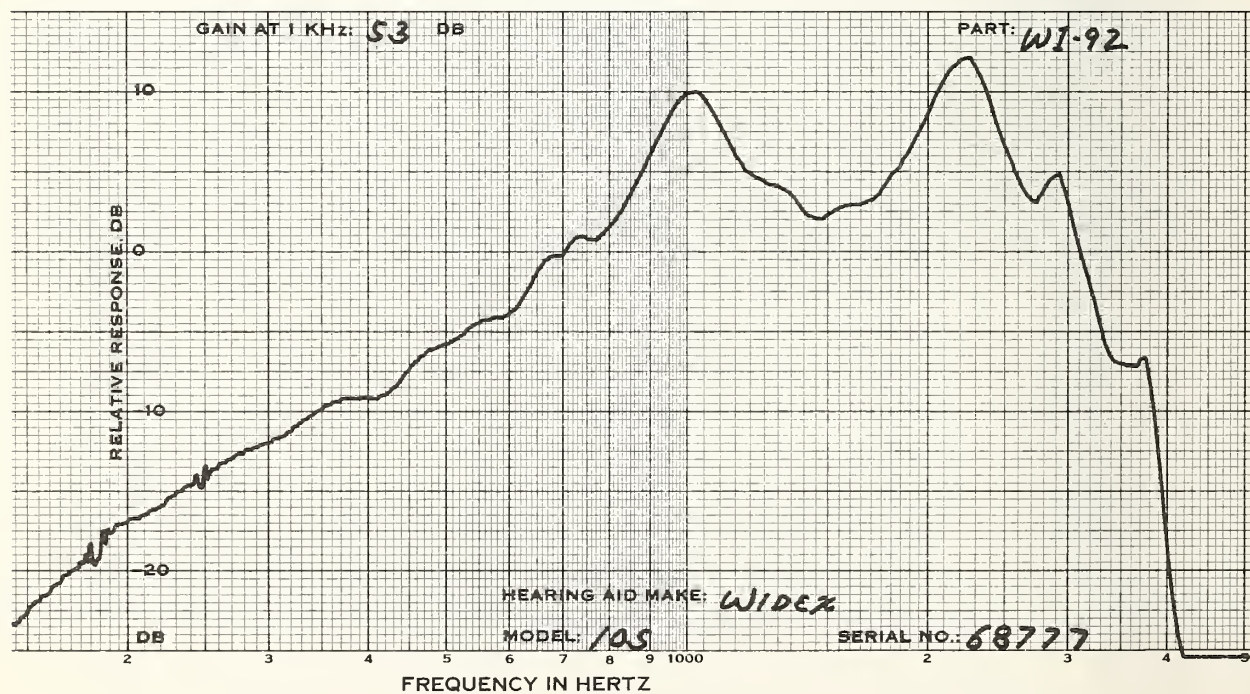
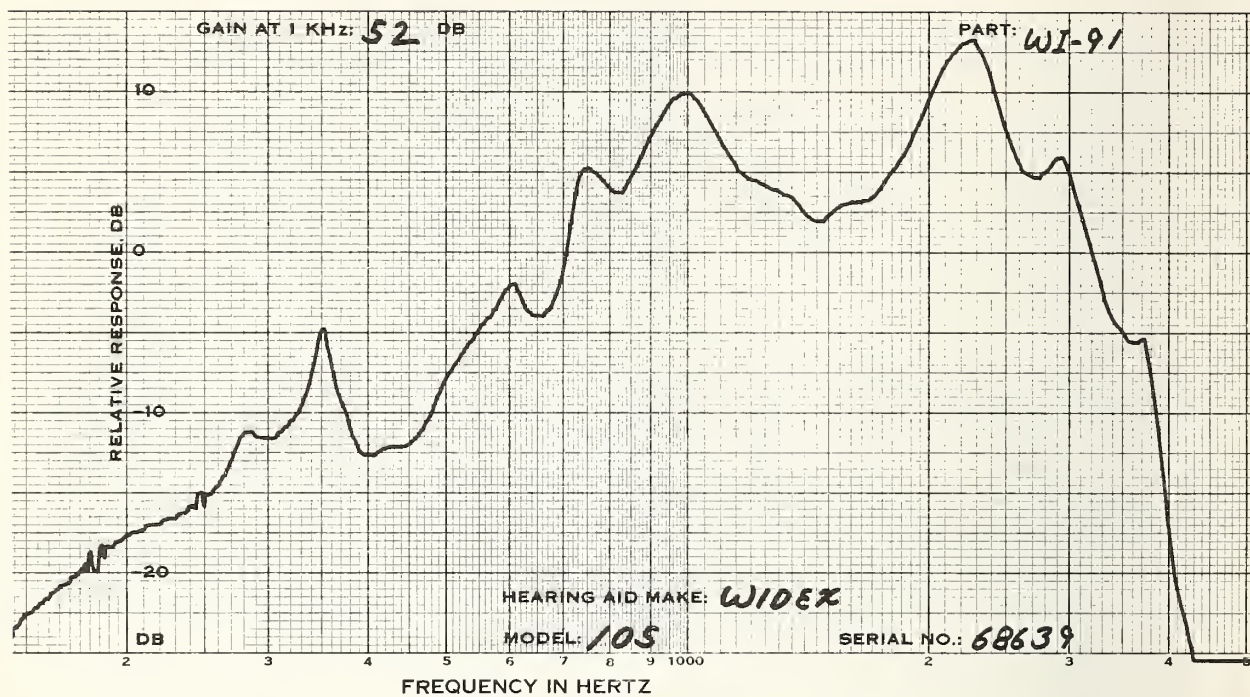
MEASUREMENTS WITH  
FULL VOL CONTROL

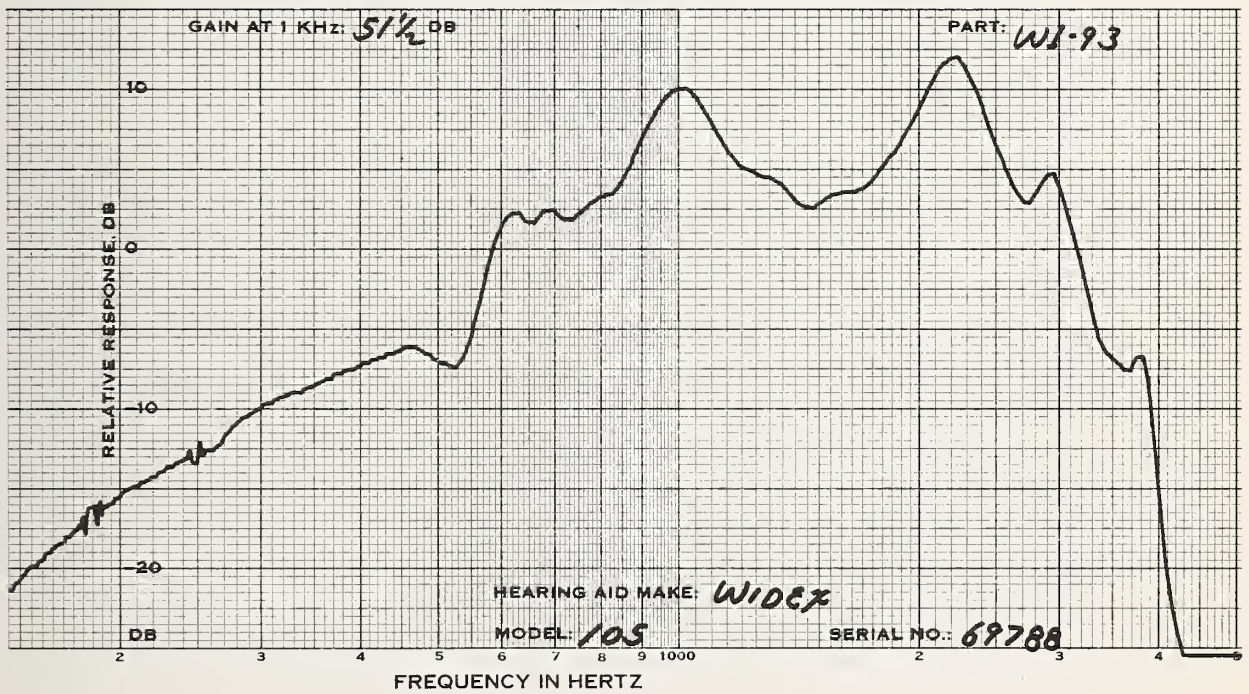
1KHZ GAIN DB	52.0	53.0	51.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	81.0	80.0
OUTPUT LEVEL DB	121.0	121.0	121.0

MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

1KHZ GAIN DB	52.0(FULL)	53.0(FULL)	51.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	61.5 71.5	61.5 71.5	62.5 72.5
500 HZ %	7 3	6 4	7 5
700 HZ %	2 2	2 2	2 3
900 HZ %	1 1	1 1	1 2
MAX DIST %	7 33	6 27	7 35
FREQ OF MAX DIS	500 1500	500 1500	500 1500
S/N RATIO DB			
1KHZ SIGNAL	47.0	49.0	48.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.7	1.7	1.7
65 DB INPUT	1.7	1.7	1.7
BATTERY VOLTAGE	1.53	1.52	1.53







WIDEX

OE

MODEL:A1T TONE:SEE BELOW BATTERY:675

CODE	WI-094	WI-095	WI-096
SERIAL #	29817	29826	29841
DATE		FEB 27, 1974	

MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	50.0	51.5	49.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	90.0	90.0	90.0
OUTPUT LEVEL DB	120.0	121.5	121.0

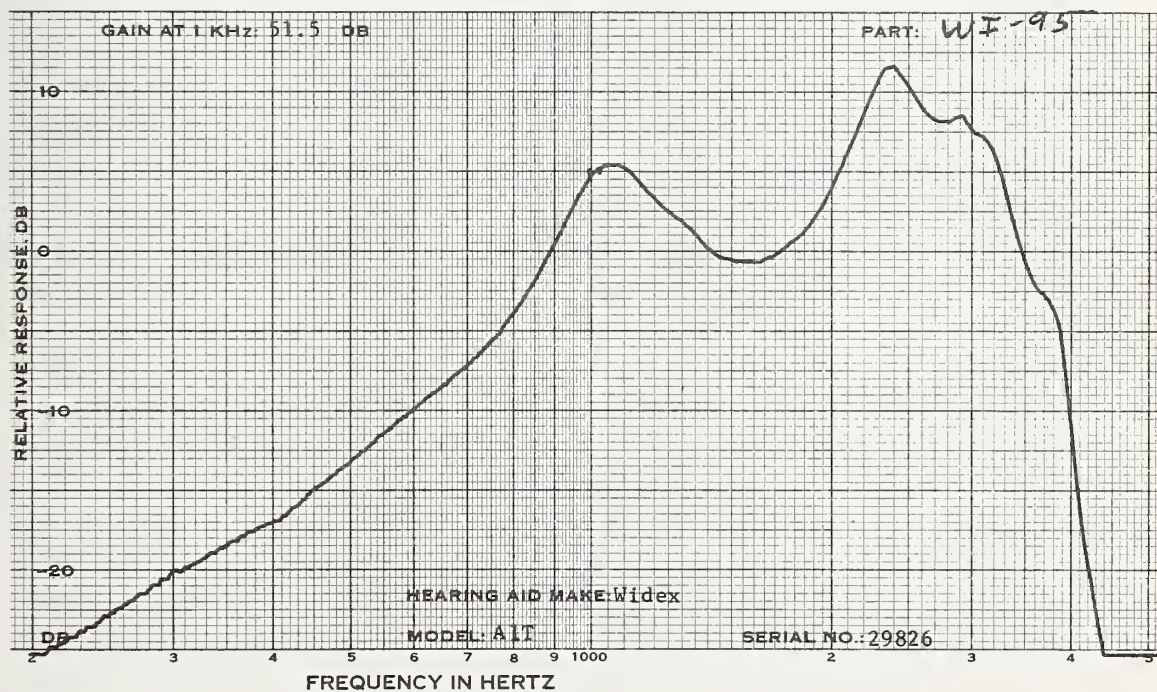
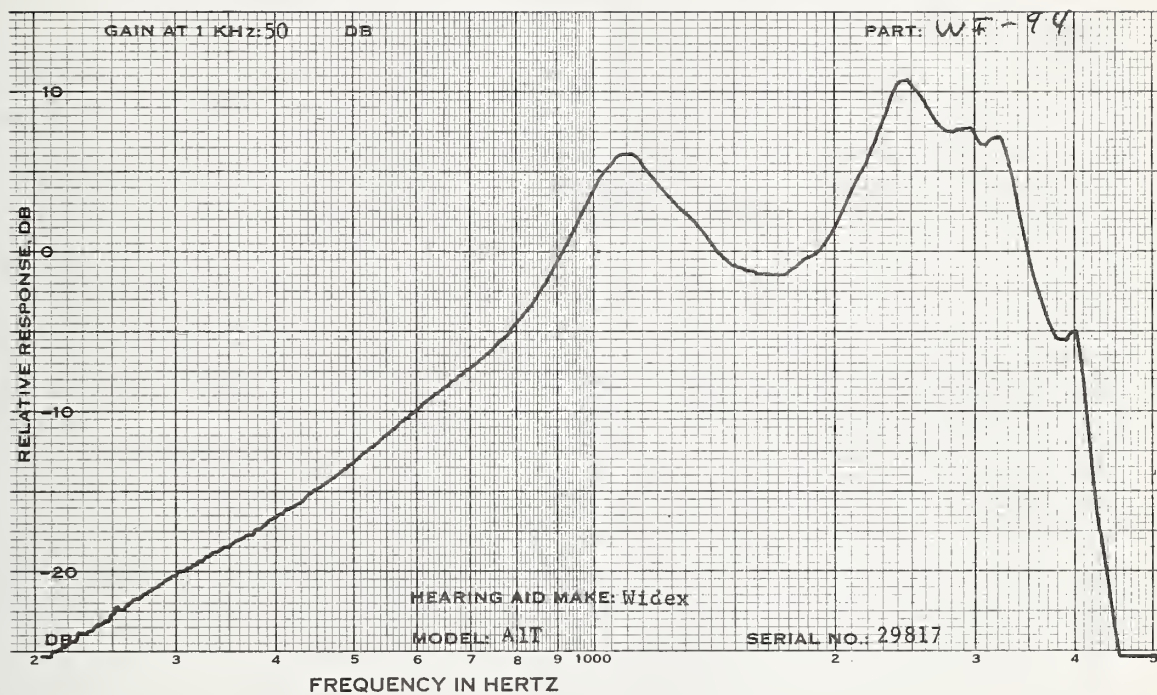
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

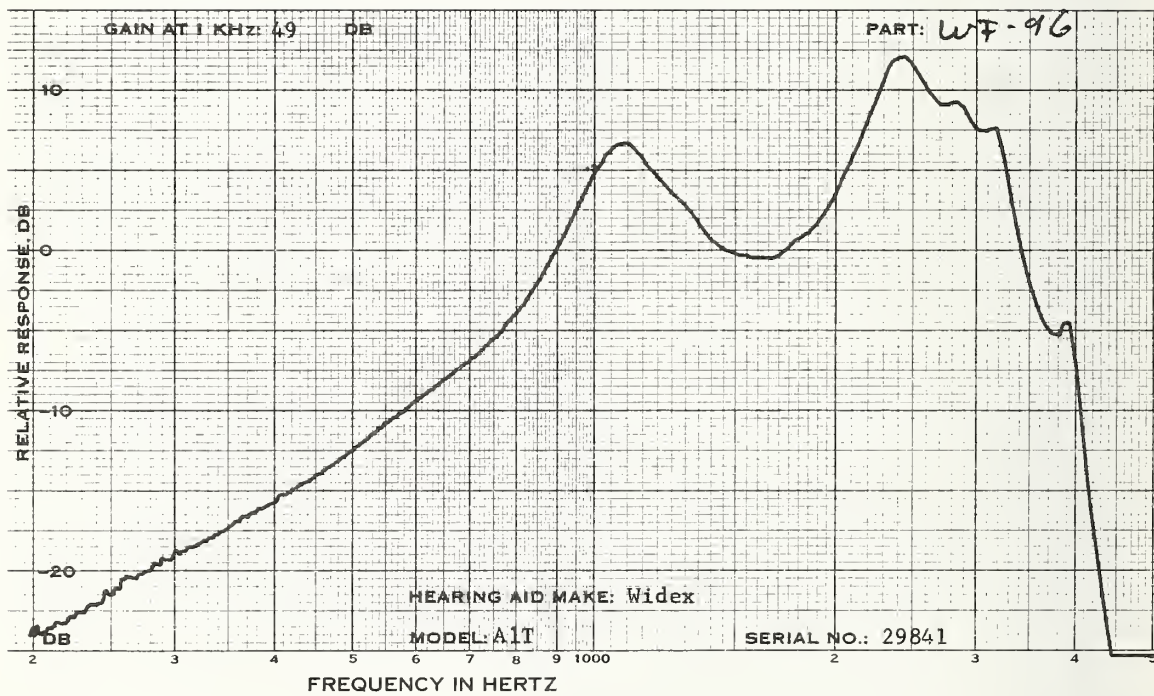
1KHZ GAIN DB	50.0(FULL)	51.5(FULL)	49.0(FULL)
HARMONIC DIST			
INPUT LEVEL DB	61.0 71.0	60.0 70.0	62.0 72.0
500 HZ %	11 17	11 15	9 15
700 HZ %	3 5	3 4	3 5
900 HZ %	1 1	1 1	1 1
MAX DIST %	11 17	11 15	9 15
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.0	44.0	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.3	1.4	1.4
65 DB INPUT	1.3	1.4	1.4
BATTERY VOLTAGE	1.35	1.37	1.37

LEFT:BEWEEN LINES 1 & 2 CENTER:CW RIGHT:CCW

TOTAL SOUND CHANNEL LENGTH:1 5/8







WIDEX DIR OE  
 MODEL:A3T TONE:SEE BELOW TUBING:3/4 BATTERY:675

CODE	WI-097	WI-098	WI-099
SERIAL #	27190	42083	42085
DATE		APR 18, 1974	

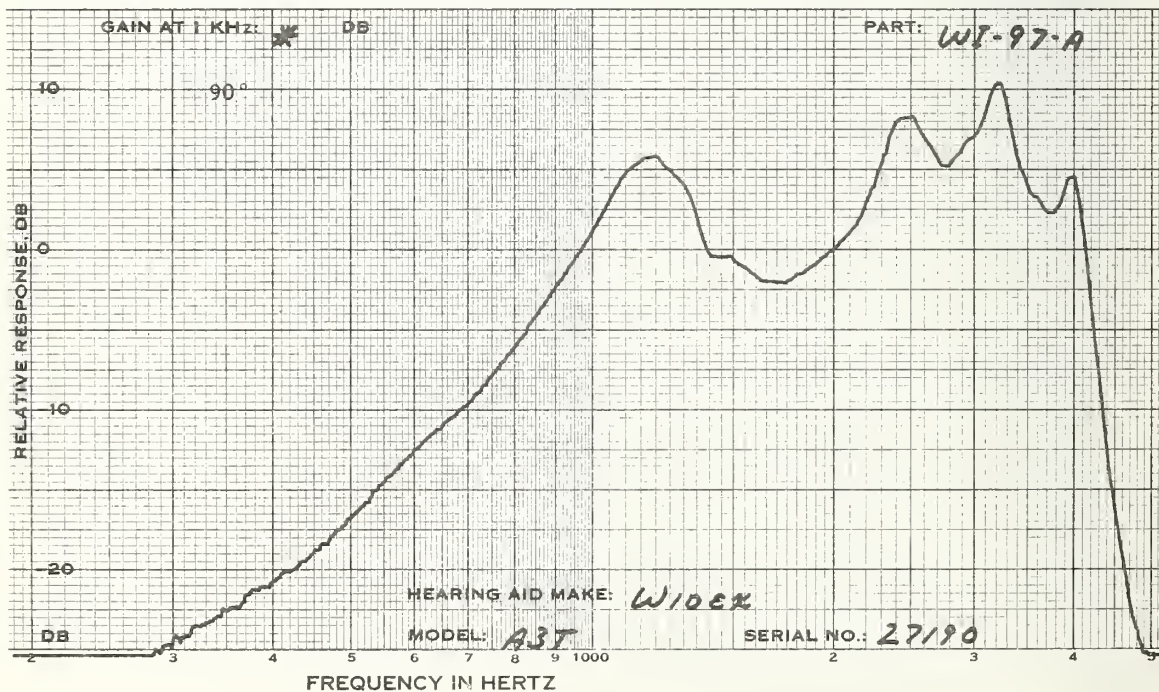
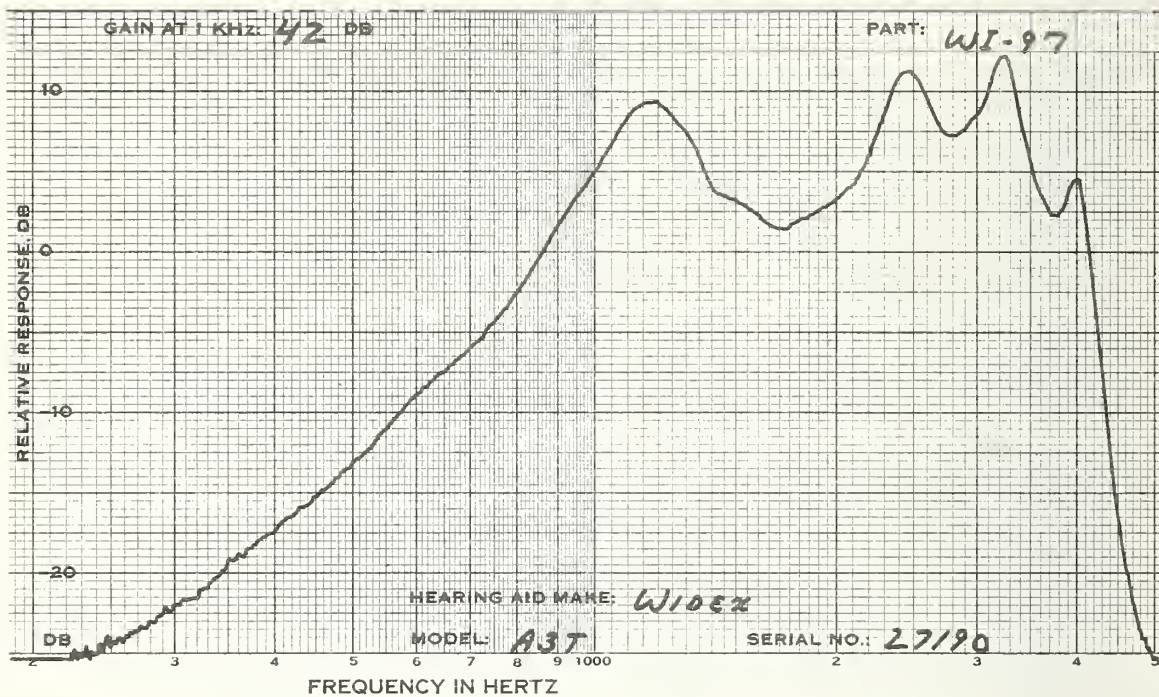
MEASUREMENTS WITH  
 FULL VOL CONTROL

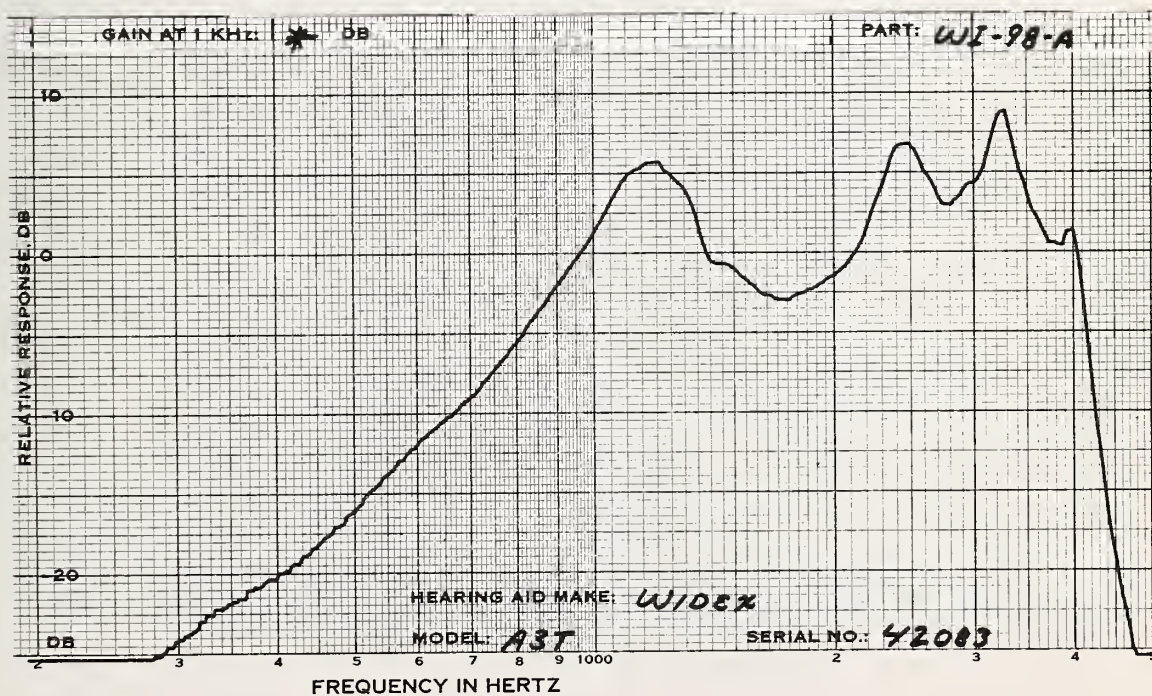
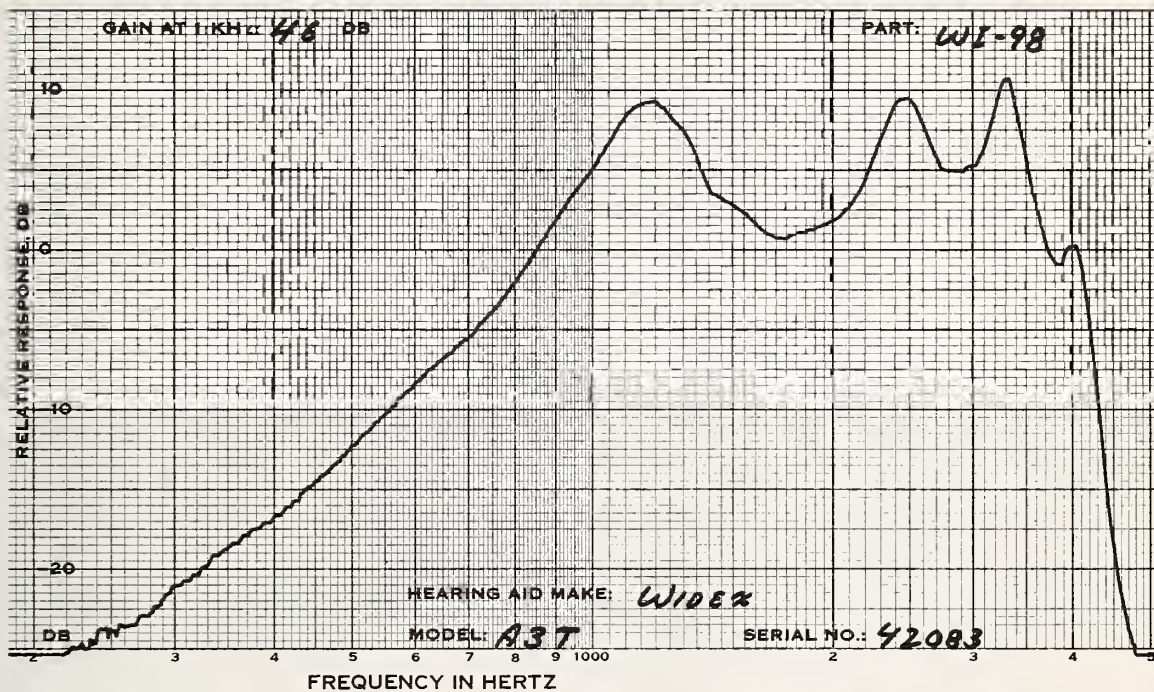
1KHZ GAIN DB	42.0	47.0	45.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	83.0	83.0	82.5
OUTPUT LEVEL DB	113.0	115.0	115.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

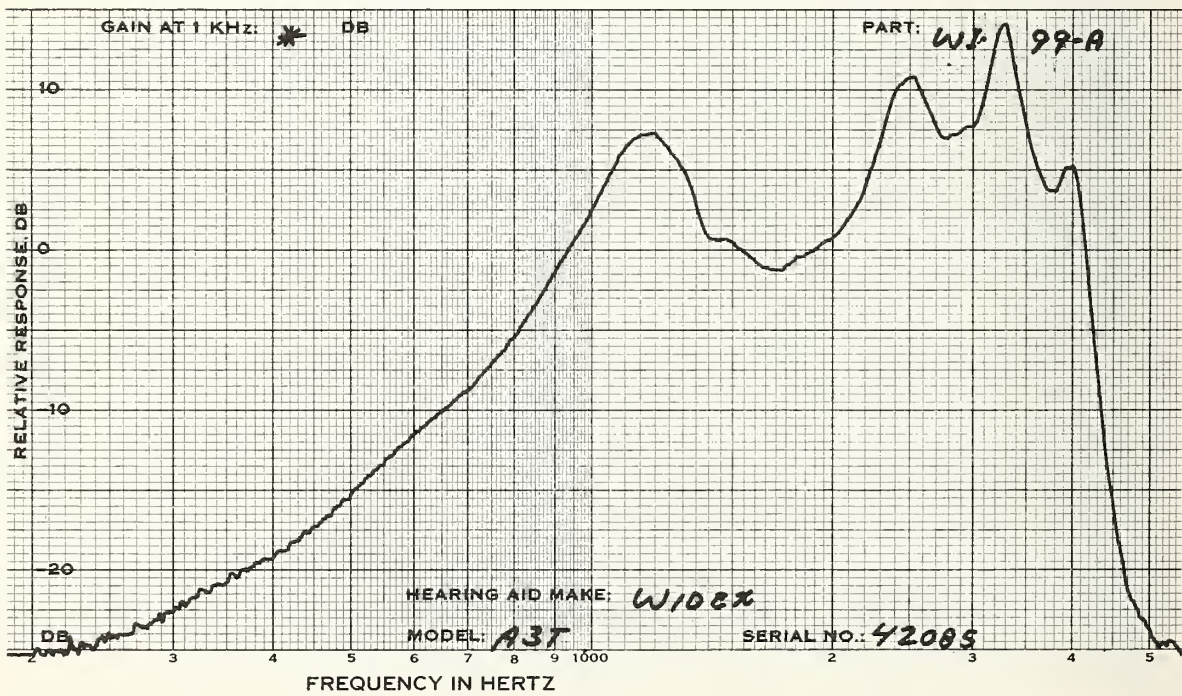
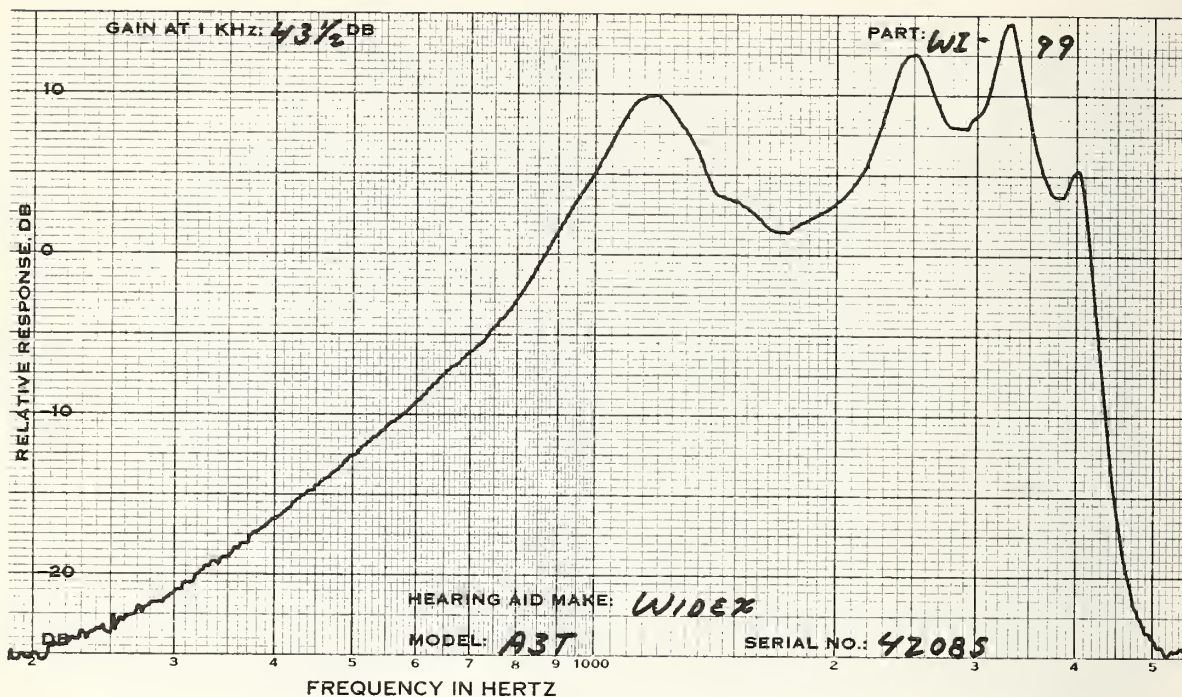
1KHZ GAIN DB	42.0(FULL)	46.0	43.5
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	11 5	8 6	9 7
700 HZ %	3 3	3 3	3 3
900 HZ %	2 2	1 1	1 1
MAX DIST %	12 6	11 7	11 8
FREQ OF MAX DIS	550 520	530 550	540 540
S/N RATIO DB			
1KHZ SIGNAL	40.5	42.0	41.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.3	1.2	1.2
65 DB INPUT	1.3	1.2	1.2
BATTERY VOLTAGE	1.35	1.36	1.35













ZENITH  
 MODEL:CARLO CM TONE:NONE TUBING:1.675 BATTERY:M13 EG

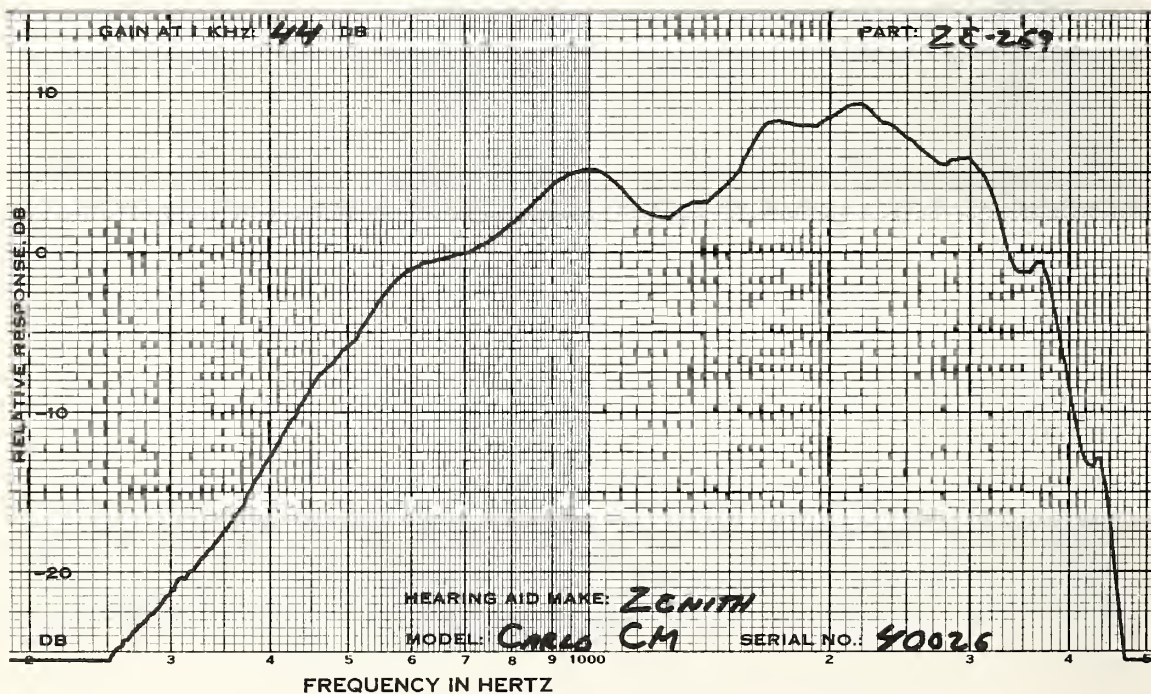
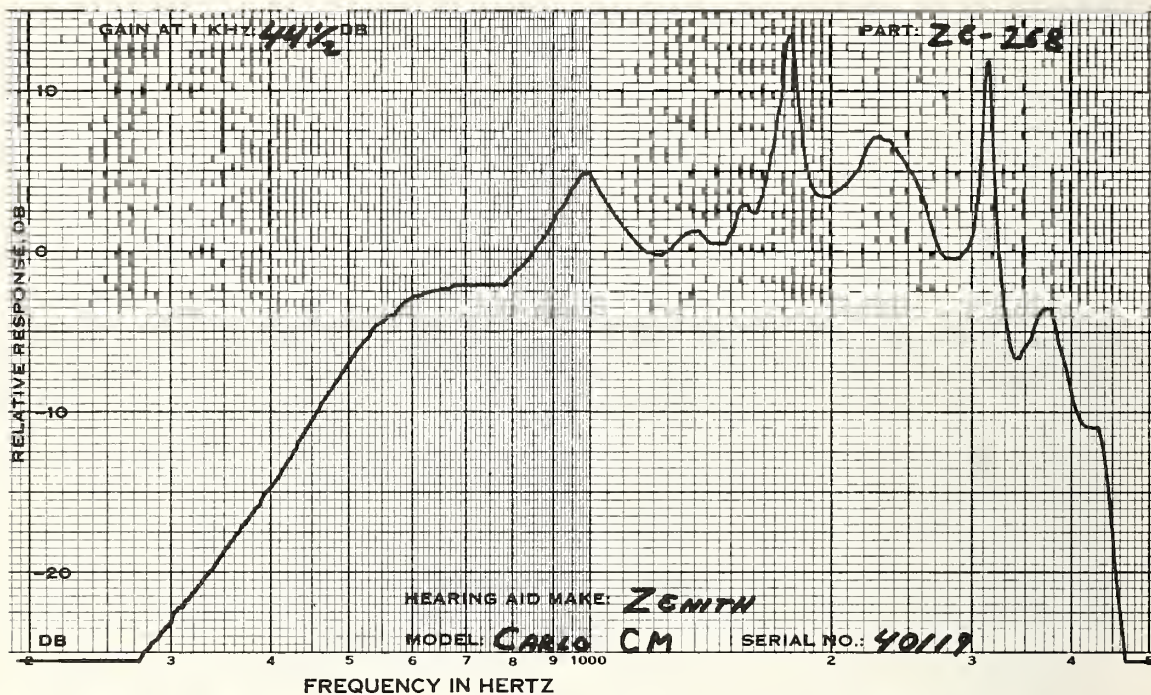
CODE	ZE-268	ZE-269	ZE-270
SERIAL #	40119	40026	40135
DATE		MAR 22, 1974	

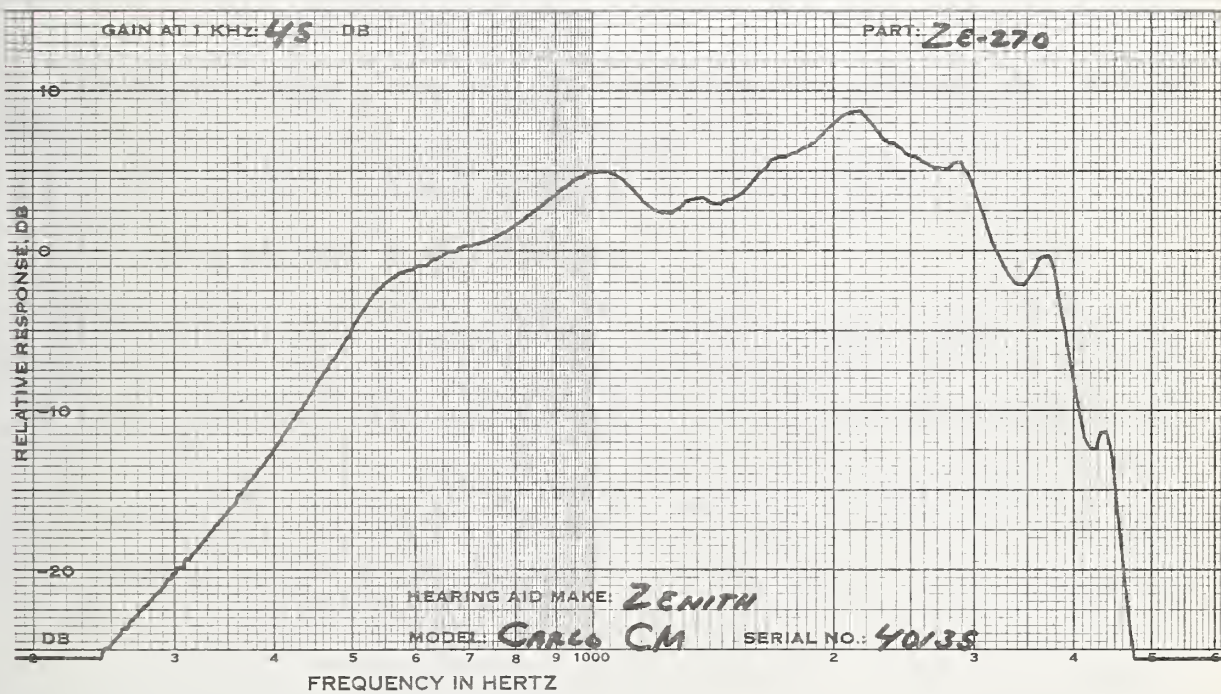
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	50.5	51.0	48.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	72.5	71.5	74.5
OUTPUT LEVEL DB	115.0	115.0	115.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	44.5	44.0	45.0
HARMONIC DIST			
INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 13	3 15	4 18
700 HZ %	1 5	2 6	2 8
900 HZ %	2 4	1 4	1 4
MAX DIST %	7 16	4 17	4 18
FREQ OF MAX DIS	1750 1780	1810 1820	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.0	46.0	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.8
65 DB INPUT	.8	.8	.8
BATTERY VOLTAGE	1.37	1.37	1.37





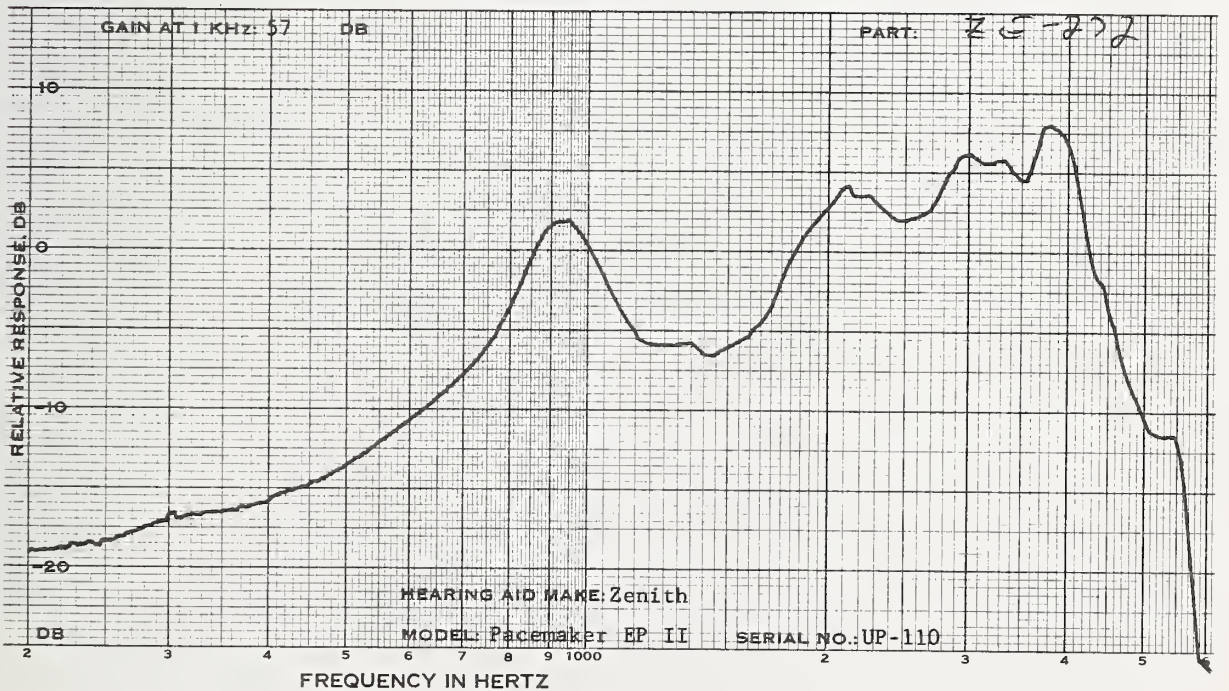
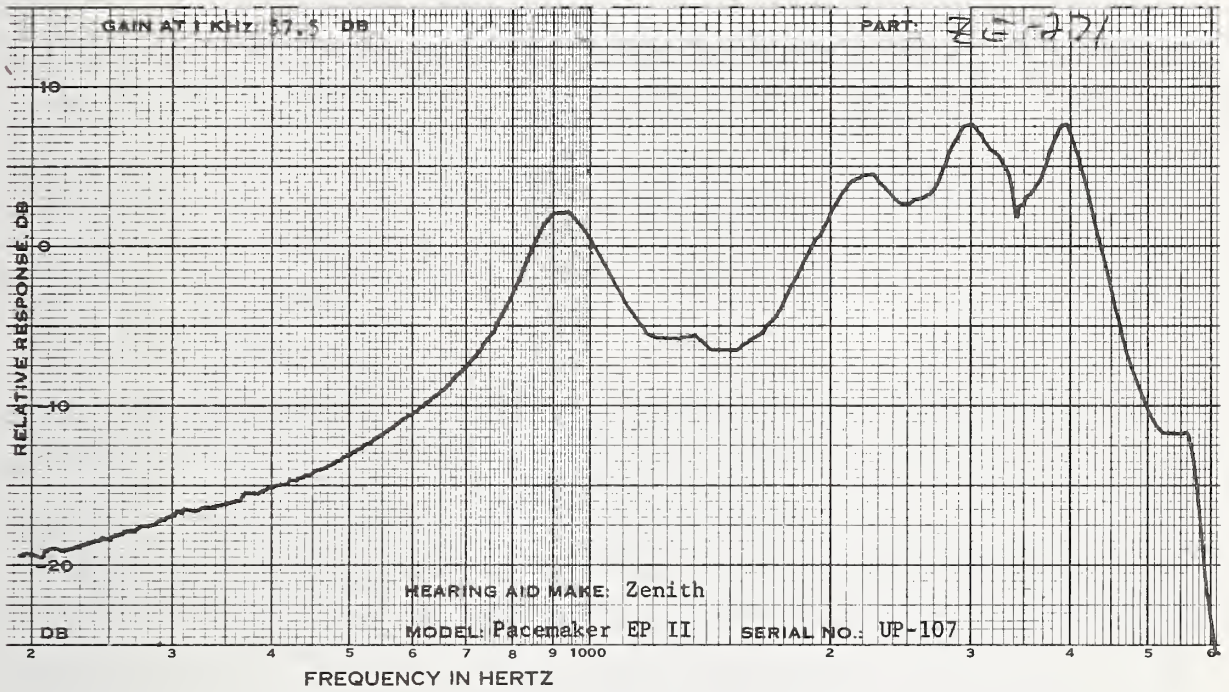


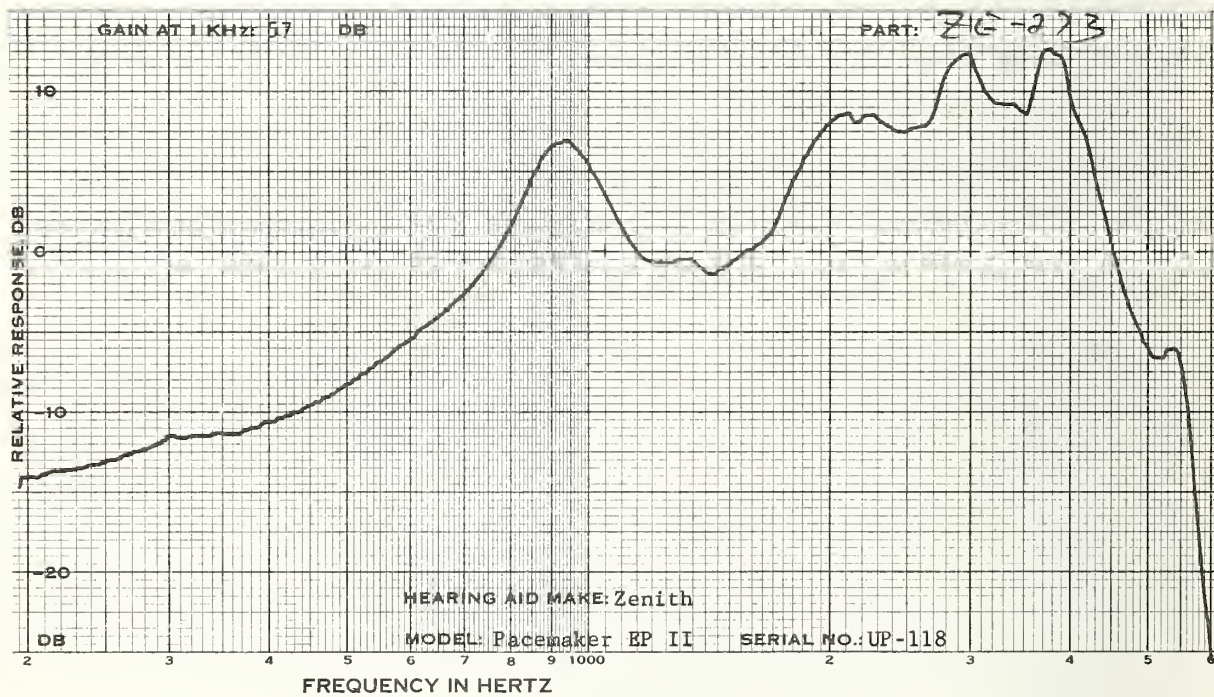
ZENITH  
 MODEL: PACEMAKER EP II TONE: FULL PWR: FULL TUBING: 1" DE BATTERY: 675

CODE	ZE-271	ZE-272	ZE-273
SERIAL #	UP-107	UP-110	UP-118
DATE		MAR 25, 1974	

MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	60.0	60.0	57.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	78.0	83.0	80.0
OUTPUT LEVEL DB	127.5	128.0	127.0

MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	57.5	57.0	57.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 10	6 10	5 11
700 HZ %	3 12	3 13	4 15
900 HZ %	2 4	2 5	3 6
MAX DIST %	5 12	6 13	5 15
FREQ OF MAX DIS	500 700	500 700	500 700
S/N RATIO DB			
1KHZ SIGNAL	45.0	45.5	46.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.7	.7	.7
65 DB INPUT	2.4	2.4	2.5
BATTERY VOLTAGE	1.38	1.37	1.37







ZENITH  
 MODEL: VOCALIZER 400 TONE: NONE      OE  
 RECEIVER: V5      BATTERY: 675

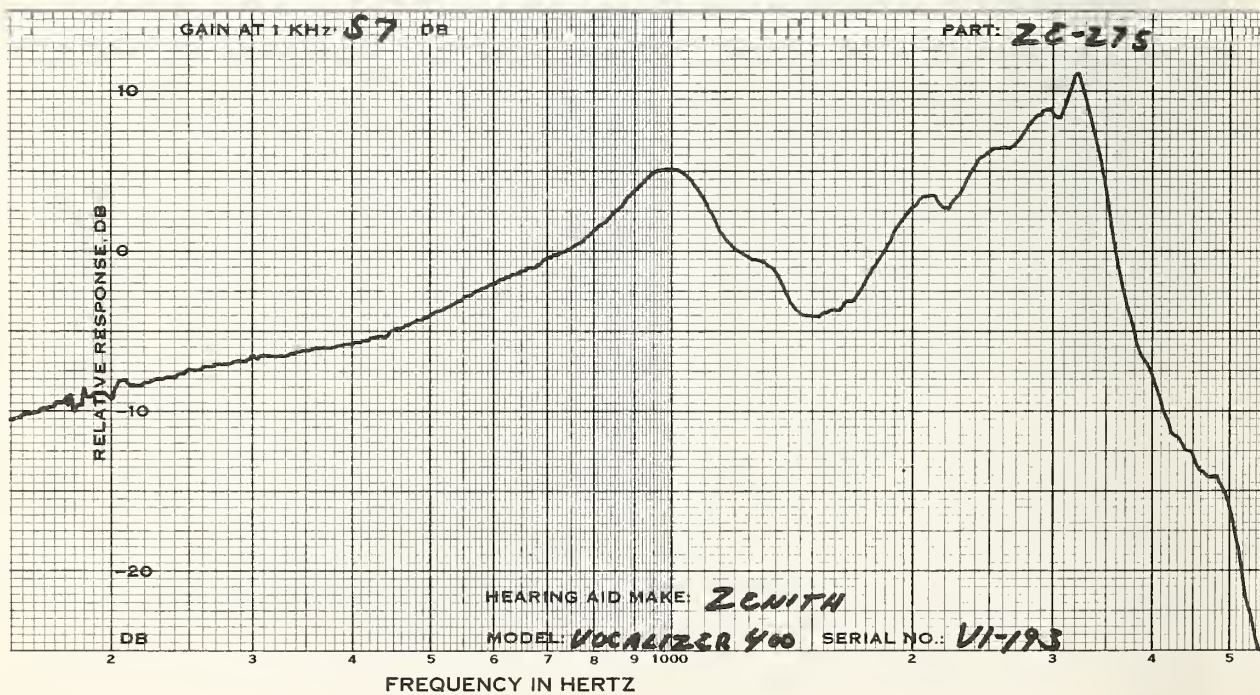
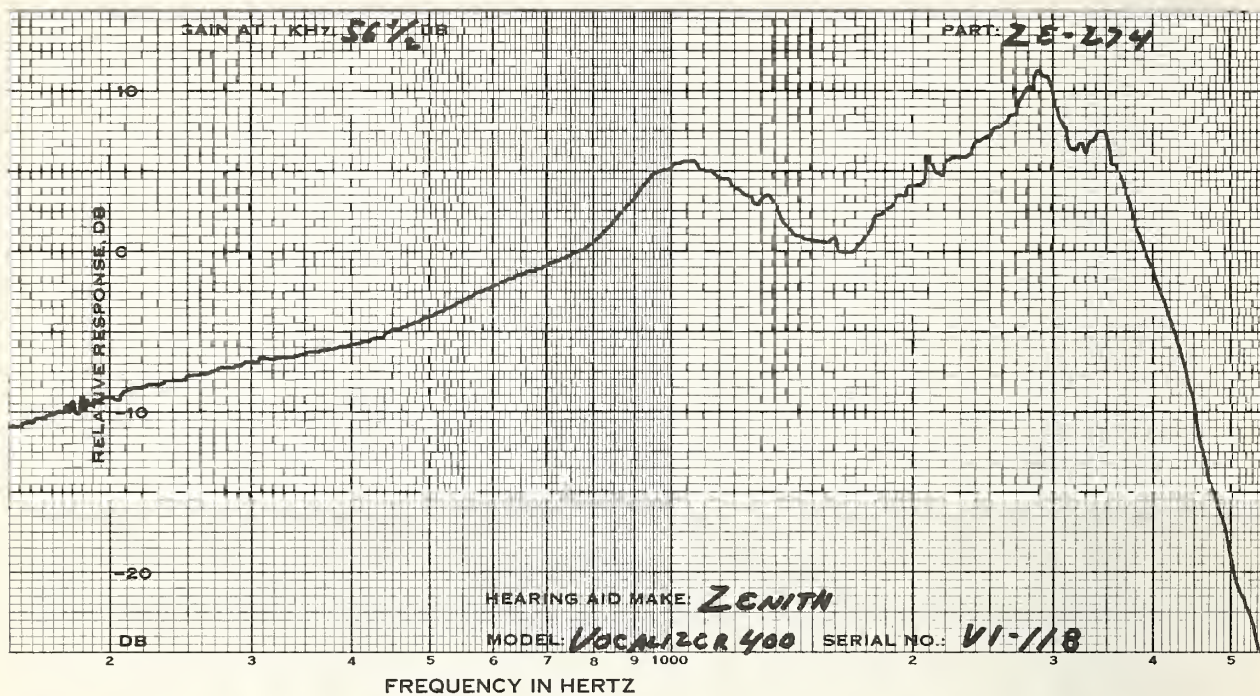
CODE	ZE-274	ZE-275	ZE-276
SERIAL #	VI-118	VI-193	VI-199
DATE		MAR 22, 1974	

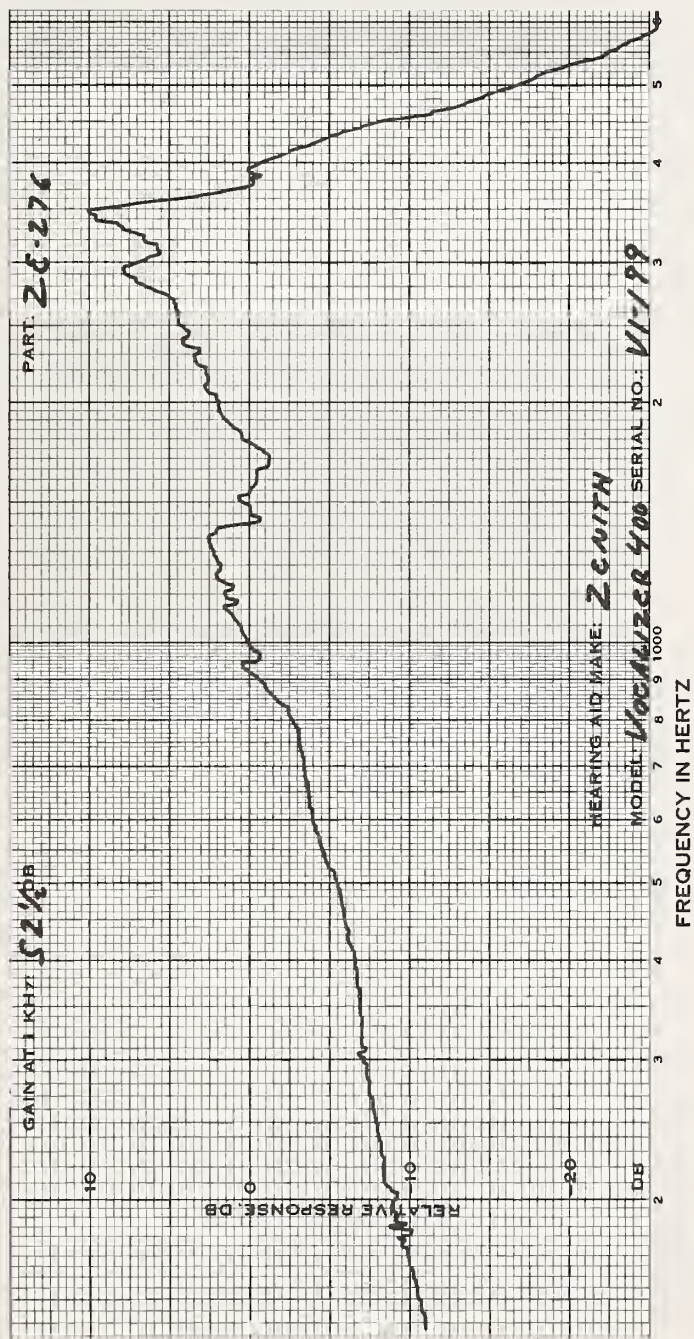
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	61.0	57.0	55.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.0	77.5	75.5
OUTPUT LEVEL DB	126.0	126.0	125.0

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	56.5	57.0(FULL)	52.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 6	4 9	2 8
700 HZ %	2 5	1 4	2 10
900 HZ %	2 5	1 4	1 4
MAX DIST %	2 6	4 9	4 12
FREQ OF MAX DIS	930 500	500 500	590 640
S/N RATIO DB			
1KHZ SIGNAL	45.5	44.5	40.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.7	1.0	.7
65 DB INPUT	2.7	2.4	1.9
BATTERY VOLTAGE	1.36	1.36	1.36





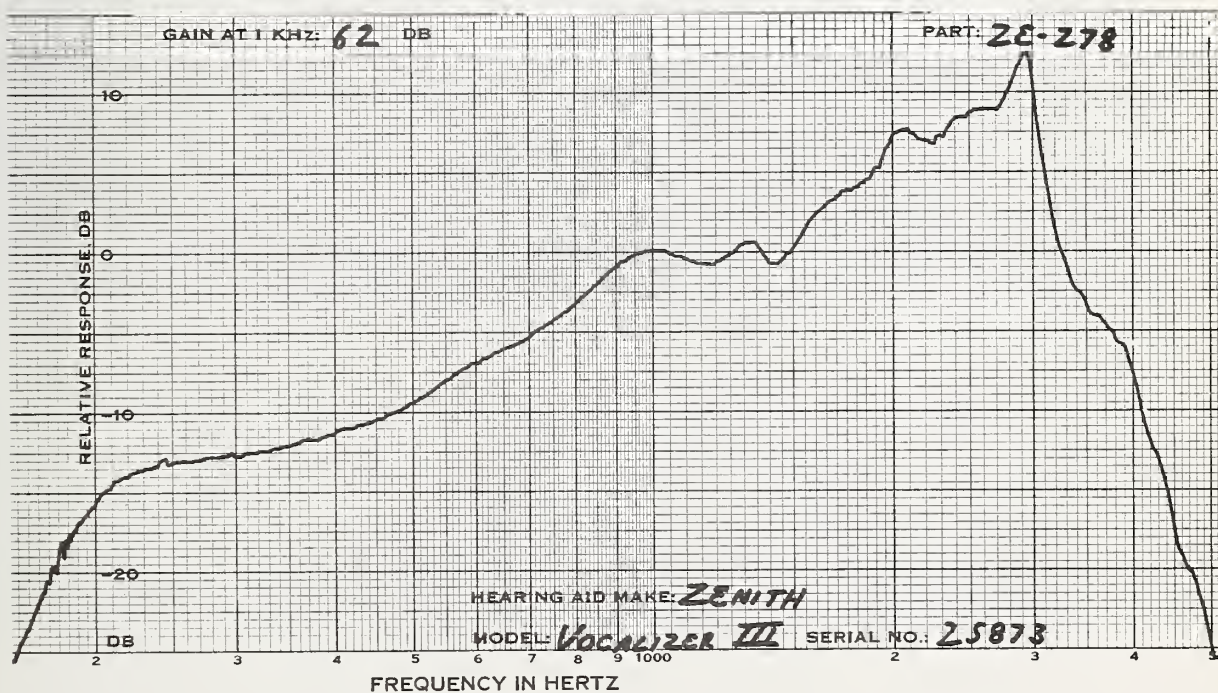
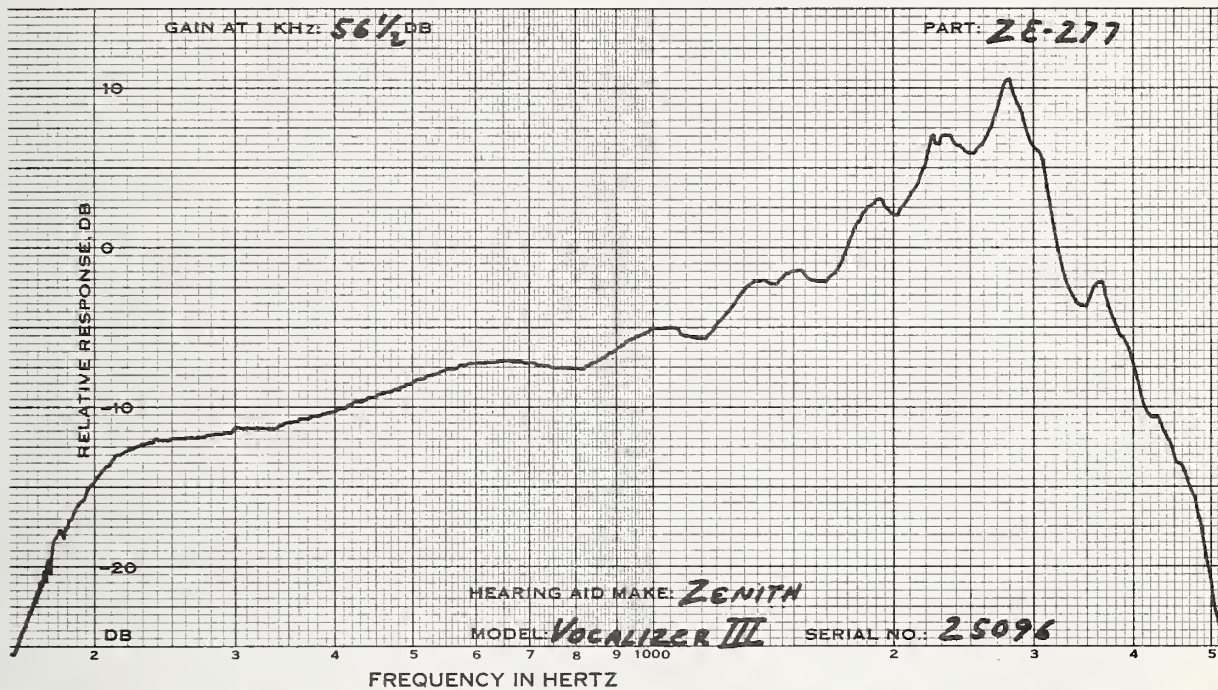


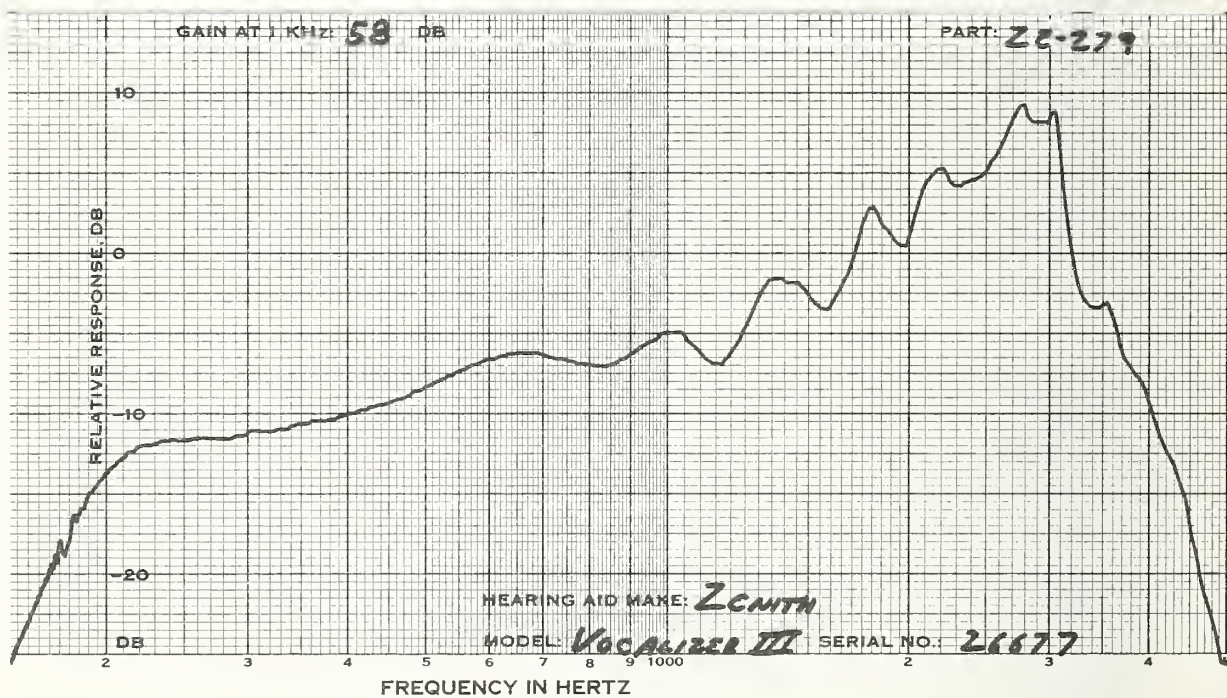
ZENITH  
 MODE::VOCALIZER III TONE:LOW CUT PWR:CW RECEIVER::Y5 BATTERY:401

CODE	ZE-277	ZE-278	ZE-279
SERIAL #	25096	25873	26677
DATE		MAR 25, 1974	

MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	66.0	66.0	69.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	71.0	71.0	71.0
OUTPUT LEVEL DB	133.0	133.5	133.5

MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	56.5	62.0	58.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	1 2	4 6	1 3
700 HZ %	2 2	2 4	2 4
900 HZ %	3 3	2 4	2 3
MAX DIST %	3 4	4 6	3 4
FREQ OF MAX DIS	1470 880	500 500	970 1440
S/N RATIO DB			
1KHZ SIGNAL	44.0	47.0	44.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	5.0	5.0	5.0
65 DB INPUT	9.0	8.6	8.8
BATTERY VOLTAGE	1.40	1.40	1.39







ZENITH CROS EG  
 MODEL:CROS TONE:NONE TUBING:1.675 BATTERY:RM41

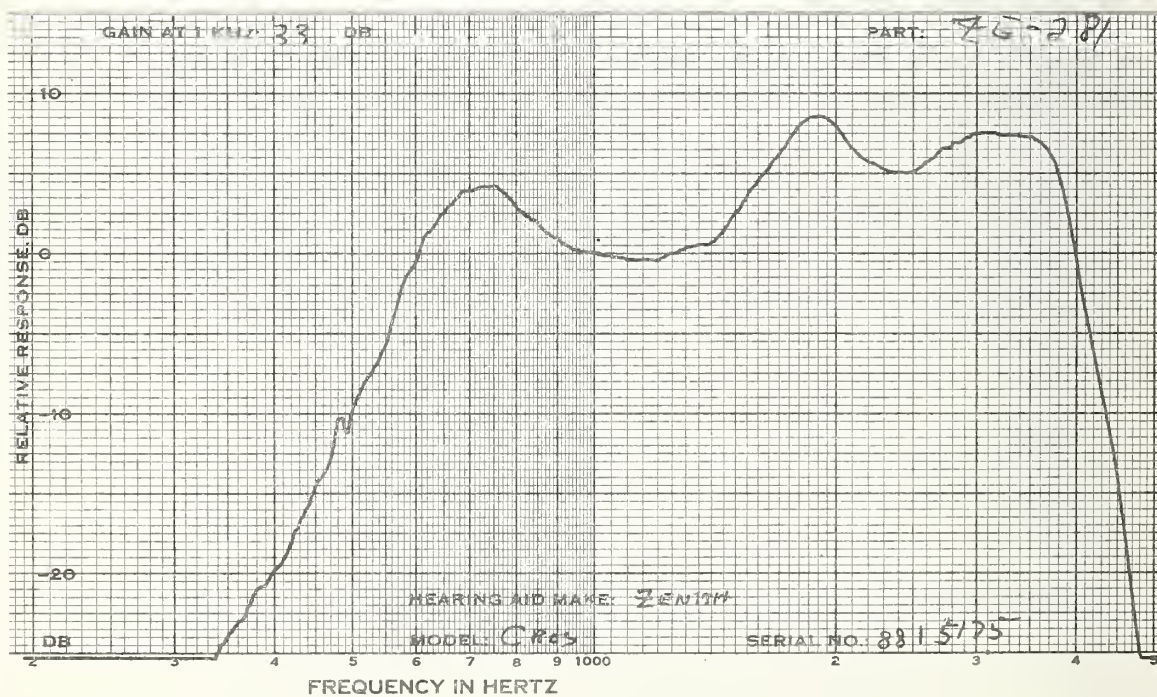
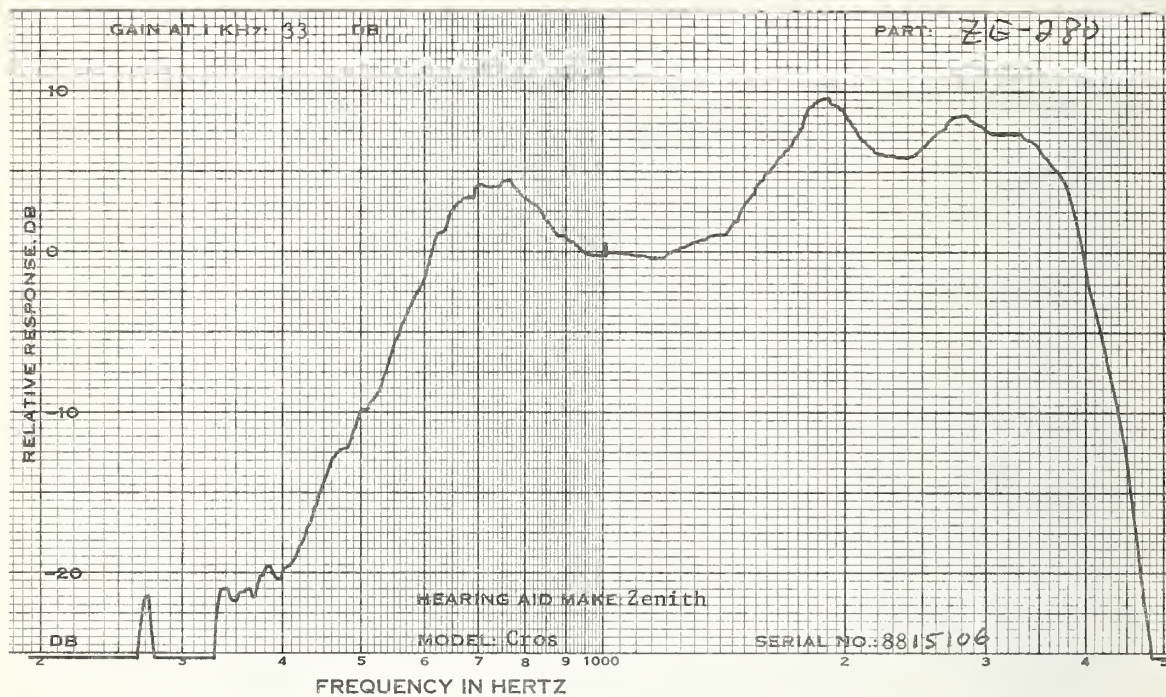
CODE	ZE-280	ZE-281	ZE-282
SERIAL #	8815106	8815175	8818796
DATE		MAY 13, 1974	

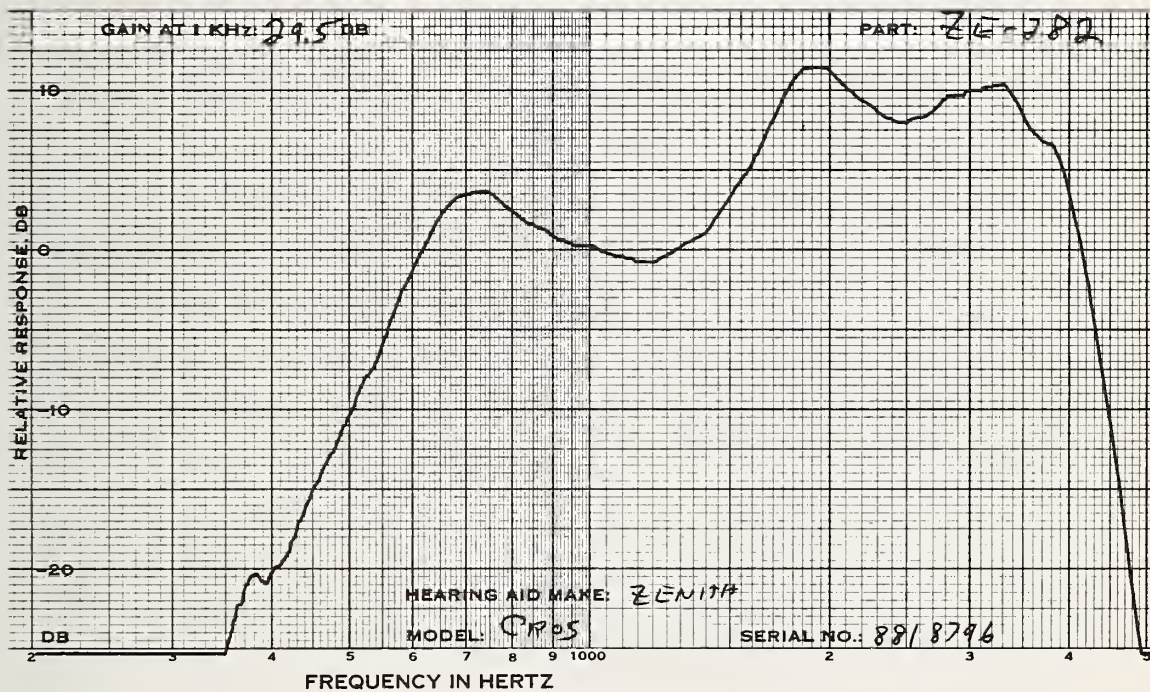
MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	33.0	33.0	29.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	89.0	90.0	90.0
OUTPUT LEVEL DB	117.0	117.0	115.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	33.0(FULL)	33.0(FULL)	29.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	69.0 79.0	68.5 78.5	69.0 79.0
1000 HZ %	9 34	6 25	11 39
1500 HZ %	19 49	13 36	20 48
2000 HZ %	2 5	3 9	3 7
MAX DIST %	26 77	13 50	21 65
FREQ OF MAX DIS	1350 1350	1500 1370	1350 1350
S/N RATIO DB			
1KHZ SIGNAL	43.0	44.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.3	1.4	1.2
65 DB INPUT	1.3	1.4	1.2
BATTERY VOLTAGE	1.34	1.34	1.33
S/N 2KHZ	51.0	51.0	52.5







ZENITH  
 MODEL:BI-PHASIC TONE:NONE TUBING:1.675 SPEC EG BATTERY:RM13

CODE	ZE-283	ZE-284	ZE-285
SERIAL #	OL5161	OL519	OL5202
DATE		MAY 16, 1974	

MEASUREMENTS WITH  
 FULL VOL CONTROL

1KHZ GAIN DB	46.0	47.5	46.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.0	73.5	73.0
OUTPUT LEVEL DB	113.0	113.5	112.5

MEASUREMENTS WITH  
 REDUCED VOLUME  
 CONTROL SETTING

1KHZ GAIN DB	43.0	43.5	41.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	7 18	7 18	7 16
700 HZ %	2 5	3 6	2 5
900 HZ %	2 7	3 7	2 7
MAX DIST %	7 18	7 18	7 18
FREQ OF MAX DIS	500 500	500 500	500 1320
S/N RATIO DB			
1KHZ SIGNAL	43.0	43.5	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.8
65 DB INPUT	.8	.8	.8
BATTERY VOLTAGE	1.33	1.34	1.33

THIS IS A SPECIAL BINAURAL MODEL, WITH A DIFFERENT FREQUENCY  
 RESPONSE ON EACH SIDE. THE DATA FOR FOR THE HIGH FREQUENCY  
 EMPHASIS SIDE ARE ON THE NEXT DATA PAGE.

ZENITH  
HIGH EMPHASIS SIDE OF BI-PHASIC SW TO REAR. SPEC EG

CODE	ZE283A	ZE284A	ZE285A
SERIAL #	OR5161	OR5196	OR5202
DATE		MAY 16, 1974	

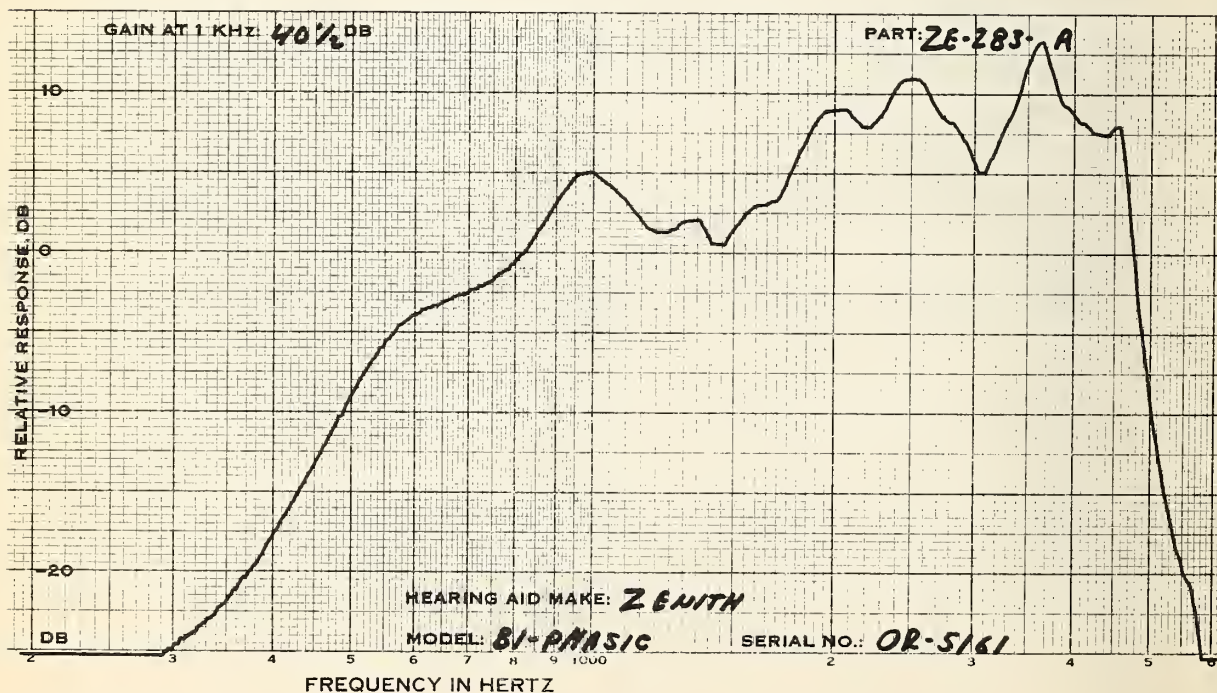
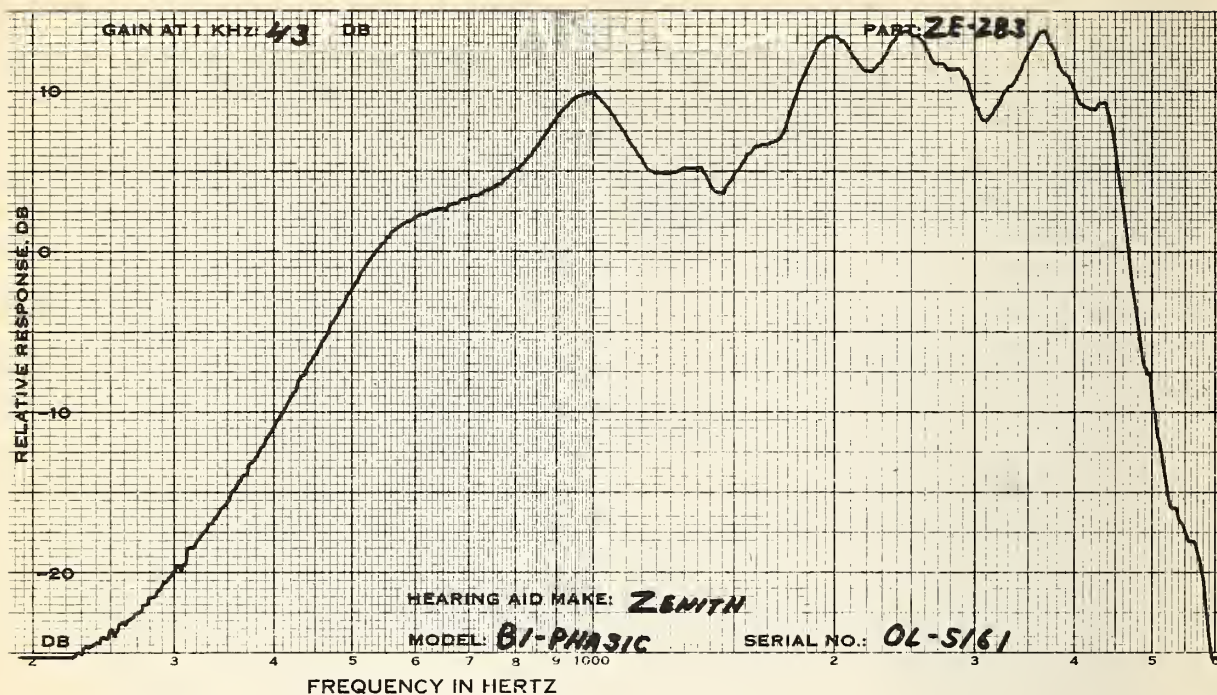
MEASUREMENTS WITH  
FULL VOL CONTROL

1KHZ GAIN DB	46.5	45.0	47.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	70.0	71.0	71.0
OUTPUT LEVEL DB	112.0	112.5	111.0

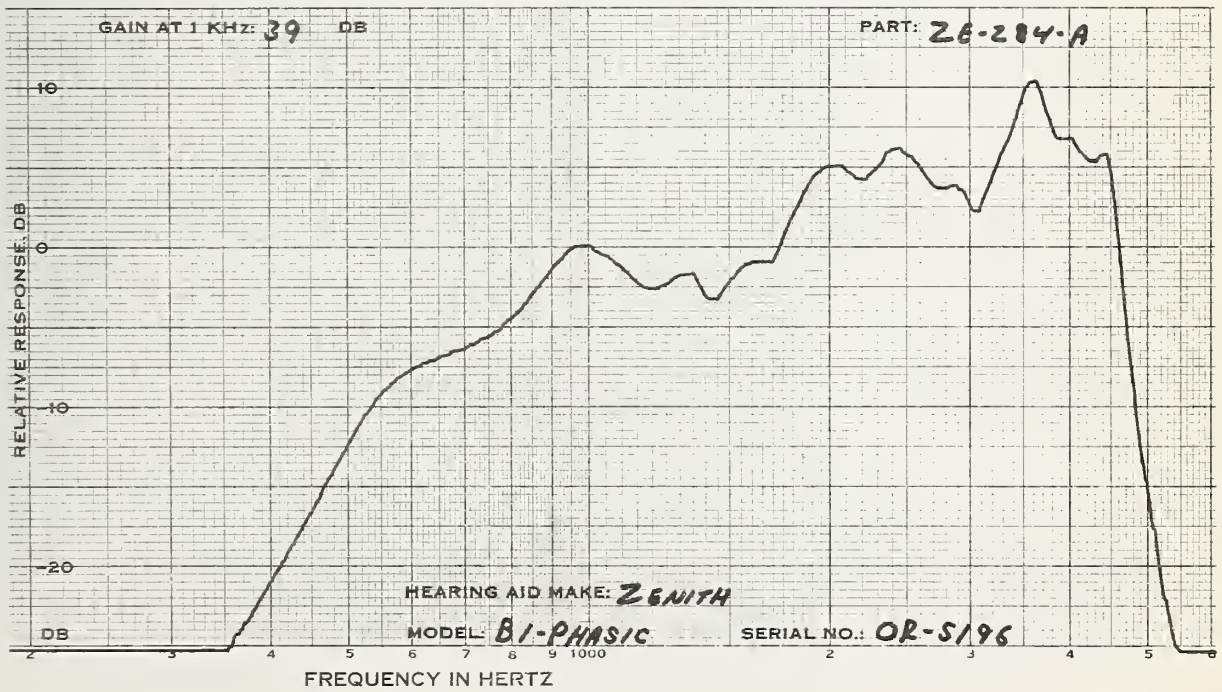
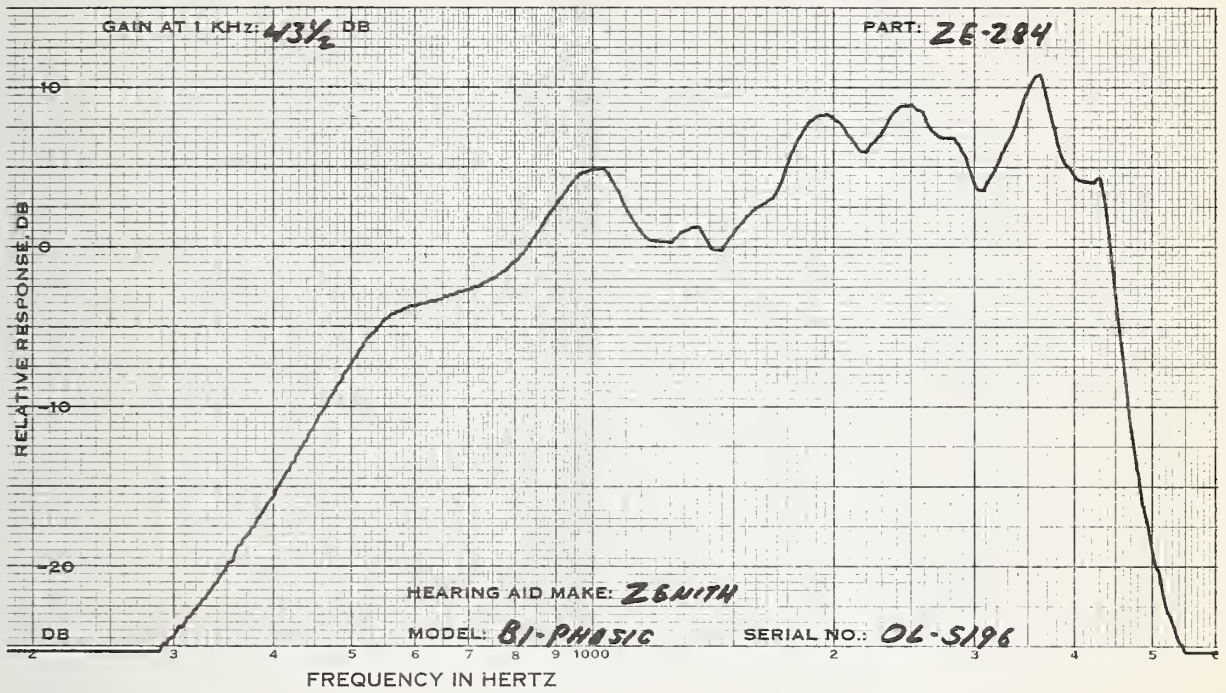
MEASUREMENTS WITH  
REDUCED VOLUME  
CONTROL SETTING

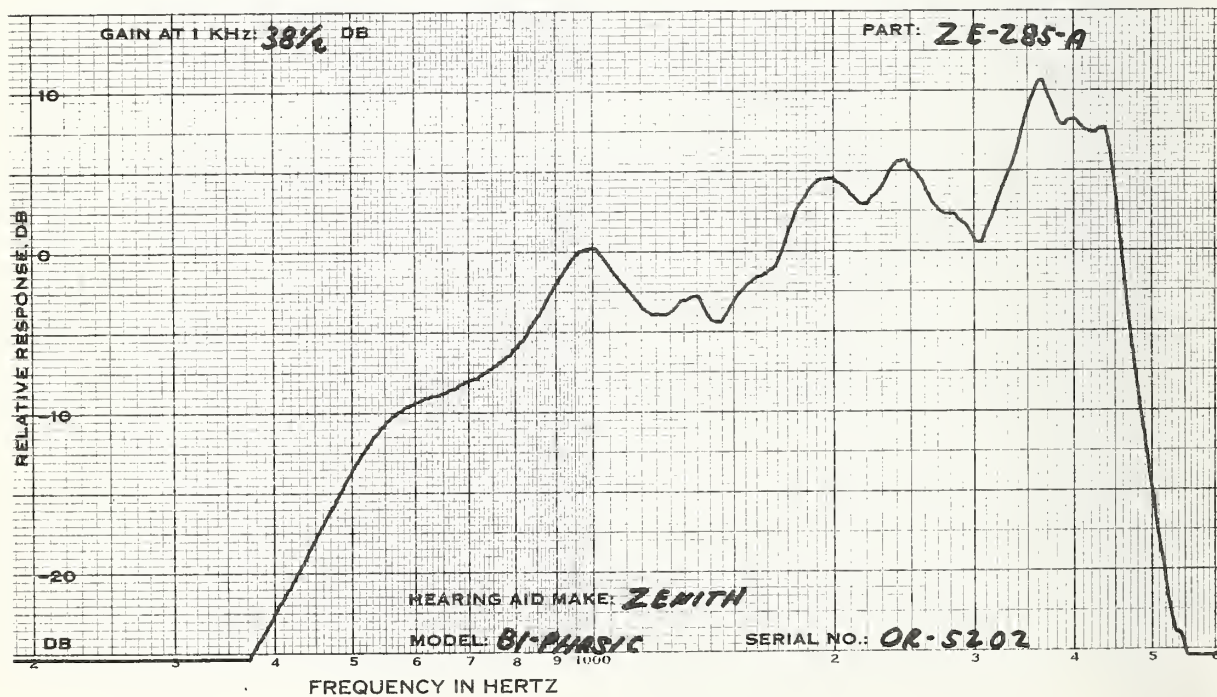
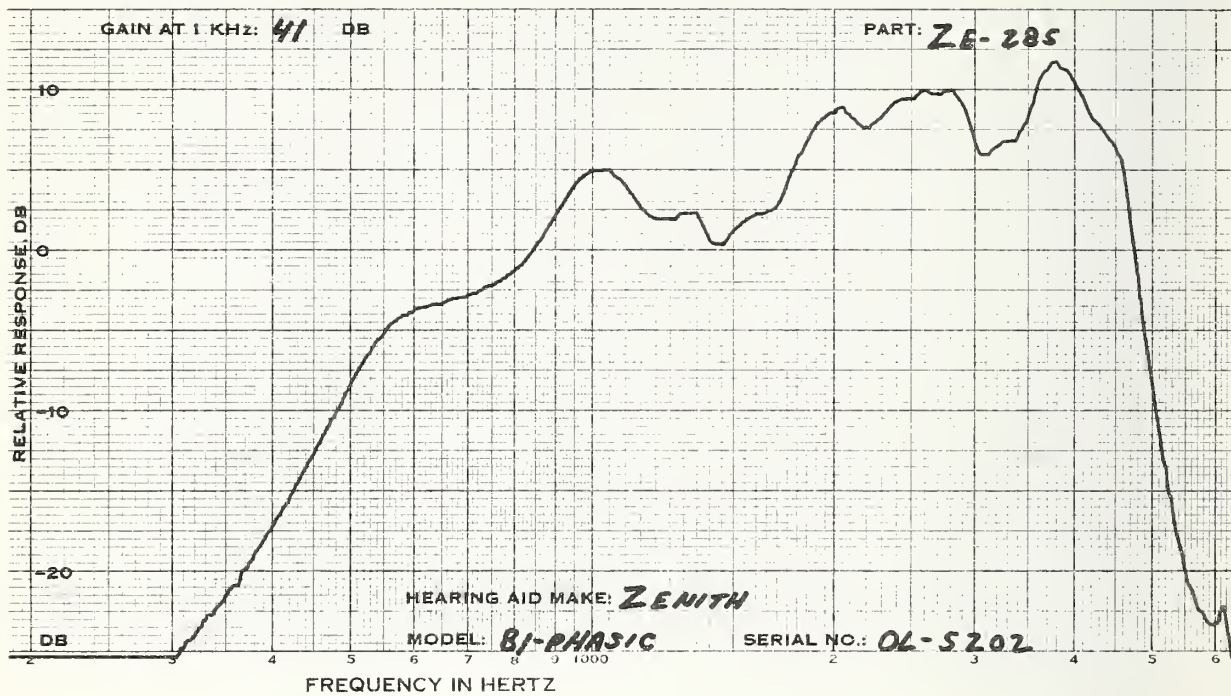
1KHZ GAIN DB	40.5	39.0	38.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	7 17	5 10	6 12
700 HZ %	2 7	2 4	2 6
900 HZ %	3 8	2 5	3 8
MAX DIST %	9 25	6 15	6 16
FREQ OF MAX DIS	1270 1270	1300 1300	1270 1300
S/N RATIO DB			
1KHZ SIGNAL	43.0	42.5	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	.8	.8
65 DB INPUT	.9	.8	.8
BATTERY VOLTAGE	1.34	1.34	1.33

@FIN









SECTION V

COPY OF BID SOLICITATION FORMAT FOR CONTRACT YEAR 1975



STANDARD FORM 33, NOV. 1969 GENERAL SERVICES ADMINISTRATION FED. PROC. REG. (41 CFR) 1-16.101		<b>SOLICITATION, OFFER, AND AWARD</b>		3. CERTIFIED FOR NATIONAL DEFENSE UNDER BDSA REG. 2 AND/OR DMS REG. 1.  RATING:		4. PAGE <b>1</b>	OF <b>30</b>
1. CONTRACT (Proc. Inst. Ident.) NO.		2. SOLICITATION NO. <b>M3-Q1-75</b>  <input type="checkbox"/> ADVERTISED (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)		5. DATE ISSUED <b>10/25/73</b>		6. REQUISITION/PURCHASE REQUEST NO.	
7. ISSUED BY <b>Veterans Administration Marketing Division Administrative Medical Supplies &amp; Equipment 1st Floor, Bldg. 50, Hines, IL 60141</b>				8. ADDRESS OFFER TO (If other than Block 7) <b>Veterans Administration Marketing Center Room 123, Building 50 Hines, IL 60141</b>			

**SOLICITATION**

9. Sealed offers in original and \_\_\_\_\_ copies for furnishing the supplies or services described in the Schedule will be received at the place specified in block 8, OR IF HAND-CARRIED, IN THE DEPOSITORY LOCATED IN Same as Block 7 until November 15, 1973 (Time, Zone, and Date). If this is an advertised solicitation, offers will be publicly opened at that time. CAUTION—LATE OFFERS. See par. 8 of Solicitation Instructions and Conditions.

All offers are subject to the following:

1. The attached Solicitation Instructions and Conditions, SF 33-A.
2. The General Provisions, SF 32-1989 edition, which is attached or incorporated herein by reference.
3. The Schedule included below and/or attached hereto.
4. Such other provisions, representations, certifications, and specifications as are attached or incorporated herein by reference. (Attachments are listed in the Schedule.)

FOR INFORMATION CALL (Name and Telephone No.) (No collect calls.): **RUTHIE L. BIRT 312-343-7200 Ext. 2815**

**SCHEDULE**

10. ITEM NO.	11. SUPPLIES/SERVICES	12. QUANTITY	13. UNIT	14. UNIT PRICE	15. AMOUNT
	HEARING AIDS  DELIVERY: F.O.B. DESTINATION				

**OFFER (NOTE: Reverse Must Also Be Fully Completed By Offeror)**

In compliance with the above, the undersigned offers and agrees, if this offer is accepted within \_\_\_\_\_ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered, at the price set opposite each item, delivered at the designated point(s), within the time specified in the Schedule.

16. DISCOUNT FOR PROMPT PAYMENT (See Par. 9 on SF 33-A)  
 \_\_\_\_\_% 10 CALENDAR DAYS; \_\_\_\_\_% 20 CALENDAR DAYS; \_\_\_\_\_% 30 CALENDAR DAYS; \_\_\_\_\_% \_\_\_\_\_ CALENDAR DAYS.

17. OFFEROR NAME & ADDRESS  (Street, city, county, state, & ZIP Code)  Area Code and Telephone No.  <input type="checkbox"/> Check If Remittance Address Is Different From Above—Enter Such Address In Schedule.		18. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or Print)	
		19. SIGNATURE	20. OFFER DATE

**AWARD (To Be Completed By Government)**

21. ACCEPTED AS TO ITEMS NUMBERED <b>MARKED "A"</b>		22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA	
24. SUBMIT INVOICES (4 copies unless otherwise specified) TO ADDRESS SHOWN IN BLOCK _____		25. NEGOTIATED <input type="checkbox"/> 10 U.S.C. 2304(a)(1) PURSUANT TO <input checked="" type="checkbox"/> 41 U.S.C. 252(c)(1)		
26. ADMINISTERED BY (If other than block 7)		27. PAYMENT WILL BE MADE BY		
28. NAME OF CONTRACTING OFFICER (Type or Print) <b>RUTHIE L. BIRT</b>		29. UNITED STATES OF AMERICA BY: _____ (Signature of Contracting Officer)		30. AWARD DATE

# REPRESENTATIONS, CERTIFICATIONS, AND ACKNOWLEDGMENTS

The Offeror represents and certifies as part of his offer that: (Check or complete all applicable boxes or blocks.)

## 1. SMALL BUSINESS (See par. 14 on SF 33-A.)

He ☐ is, ☐ is not, a small business concern. If offeror is a small business concern and is not the manufacturer of the supplies offered, he also represents that all supplies to be furnished hereunder ☐ will, ☐ will not, be manufactured or produced by a small business concern in the United States, its possessions, or Puerto Rico.

## 2. REGULAR DEALER—MANUFACTURER (Applicable only to supply contracts exceeding \$10,000.)

He is a ☐ regular dealer in, ☐ manufacturer of, the supplies offered.

## 3. CONTINGENT FEE (See par. 15 on SF 33-A.)

(a) He ☐ has, ☐ has not, employed or retained any company or person (other than a full-time, bona fide employee working solely for the offeror) to solicit or secure this contract, and (b) he ☐ has, ☐ has not, paid or agreed to pay any company or person (other than a full-time bona fide employee working solely for the offeror) any fee, commission, percentage, or brokerage fee contingent upon or resulting from the award of this contract; and (c) he ☐ agrees to furnish information relating to (a) and (b) above, as requested by the Contracting Officer. (For interpretation of the representation, including the term "bona fide employee," see Code of Federal Regulations, Title 41, Subpart 1-1.5.)

## 4. TYPE OF BUSINESS ORGANIZATION

He operates as ☐ an individual, ☐ a partnership, ☐ a nonprofit organization, ☐ a corporation, incorporated under the laws of the State of \_\_\_\_\_

## 5. AFFILIATION AND IDENTIFYING DATA (Applicable only to advertised solicitations.)

Each offeror shall complete (a) and (b) if applicable, and (c) below:

(a) He ☐ is, ☐ is not, owned or controlled by a parent company. (See par. 16 on SF 33-A.)

(b) If the offeror is owned or controlled by a parent company, he shall enter in the blocks below the name and main office address of the parent company:

Name of Parent company and main office address \_\_\_\_\_

(include ZIP Code) \_\_\_\_\_

(c) Employer's identification number (See par. 17 on SF 33-A.) \_\_\_\_\_

(Offeror's E.I. No.)

(Parent Company's E.I. No.)

## 6. EQUAL OPPORTUNITY

He ☐ has, ☐ has not, participated in a previous contract or subcontract subject either to the Equal Opportunity clause herein or the clause originally contained in section 301 of Executive Order No. 10925, or the clause contained in section 201 of Executive Order No. 11114; that he ☐ has, ☐ has not, filed required compliance reports; and that representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained prior to subcontract awards. (The above representation need not be submitted in connection with contracts or subcontracts which are exempt from the clause.)

## 7. BUY AMERICAN CERTIFICATE

The offeror hereby certifies that each end product, except the end products listed below, is a domestic source end product (as defined in the clause entitled "Buy American Act"); and that components of unknown origin have been considered to have been mined, produced, or manufactured outside the United States.

EXCLUDED END PRODUCTS

COUNTRY OF ORIGIN

## 8. CERTIFICATION OF INDEPENDENT PRICE DETERMINATION (See par. 18 on SF 33-A.)

(a) By submission of this offer, the offeror certifies, and in the case of a joint offer, each party thereto certifies as to its own organization, that in connection with this procurement:

(1) The prices in this offer have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other offeror or with any competitor;

(2) Unless otherwise required by law, the prices which have been quoted in this offer have not been knowingly disclosed by the offeror and will not be knowingly disclosed by the offeror prior to opening in the case of an advertised procurement or prior to award in the case of a negotiated procurement directly or indirectly to any other offeror or to any competitor; and

(3) No attempt has been made or will be made by the offeror to induce any other person or firm to submit or not to submit an offer for the purpose of restricting competition.

(b) Each person signing this offer certifies that:

(1) He is the person in the offeror's organization responsible within that organization for the decision as to the prices being offered herein and that he has not participated, and will not participate, in any action contrary to (a) (1) through (a) (3) above; or

(2) (i) He is not the person in the offeror's organization responsible within that organization for the decision as to the prices being offered herein and that he has been authorized in writing to act as agent for the persons responsible for such decision in certifying that such persons have not participated, will not participate, in any action contrary to (a) (1) through (a) (3) above, and as their agent does hereby so certify; and (ii) he has not participated, and will not participate, in any action contrary to (a) (1) through (a) (3) above.

## 9. CERTIFICATION OF NONSEGREGATED FACILITIES

(Applicable to (1) contracts, (2) subcontracts, and (3) agreements with applicants who are themselves performing federally assisted construction contracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause.)

By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion or national origin, because of habit, custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

Notice to prospective subcontractors of requirement for certifications of nonsegregated facilities.

A Certification of Nonsegregated Facilities must be submitted prior to the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually). NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

ACKNOWLEDGMENT OF AMENDMENTS	AMENDMENT NO.	DATE	AMENDMENT NO.	DATE
The offeror acknowledges receipt of amendments to the Solicitation for Offers and related documents numbered and dated as follows:				

NOTE: Offers must set forth full, accurate, and complete information as required by this Solicitation (including attachments). The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

INCORPORATION OF FORMS AND VA MARKETING CENTER SUPPLEMENTAL PROVISIONS: Each of the following forms and VA Marketing Center supplemental provisions are hereby incorporated by reference and made a part of this solicitation. Copies are available from the issuing office upon request.

Standard Form 32 - General Provision (Supply Contract), November, 1969

Standard Form 33A - Solicitation Instructions and Conditions (Supply Contract) March, 1969 (delete Item 1 of Block 9 SF 33)

VA Form 10-1130 (July 1970) and VA Form 10-1131 (June 1970) - VA Solicitation Instructions and Conditions and General Provisions Supplementing SF 33-A and SF 32

VA Marketing Center Supplemental Provisions Number 3, dated October 19, 1973.

LISTING OF EMPLOYMENT OPENINGS: Bidders and offerors should note that this solicitation includes a provision requiring the listing of employment openings with local office of the State employment service system where a contract award is for \$2,500 or more.

PRICING OF ADJUSTMENTS: When costs are a factor in any determination of a contract price adjustment pursuant to the "Change" clause or any other provision of this contract, such costs shall be in accordance with the contract cost principles and procedures in Part 1-15 of the Federal Procurement Regulations (41 CFR 1-15) or section XV of the Armed Service Procurement Regulation in effect on the date of this contract".

TERMINATION FOR CONVENIENCE OF THE GOVERNMENT: Paragraph 105(f) of VA Form 10-1131 (June 1970) is hereby deleted in its entirety and the following substituted therefore:

"(f) Costs claimed, agreed to, or determined pursuant to paragraphs (c), (d), and (e) of this clause shall be in accordance with the applicable contract cost principles and procedures in Part 1-15 of the Federal Procurement Regulations (41 CFR 1-15) in effect on the date of this contract".

PRICE STABILIZATION CERTIFICATION: The bidder or offeror (Contractor) certifies that he is in compliance with the price stabilization requirements of Executive Order 11723, dated June 13, 1973, and amendments thereof, and the regulations of the Cost of Living Council as set forth in title 6, Code of Federal Regulations, part 140, or any additions or revisions to title 6.

DISPUTED MATTER - EQUAL OPPORTUNITY PROGRAM: Any dispute arising under this contract relating to matters pertaining to the equal opportunity program will be handled pursuant to the provisions of the Equal Opportunity clause of this contract (sub-contract or agreement), rather than the Disputes clause contained therein.

PAYMENT OF INTEREST ON CONTRACTOR'S CLAIMS:

(a) If an appeal is filed by the contractor from a final decision of the Contracting Officer under the Disputes clause of this contract, denying a claim arising under the contract, simple interest on the amount of the claim finally determined owed by the Government shall be payable to the Contractor. Such interest shall be at the rate determined by the Secretary of the Treasury pursuant to Public Law 92-41, 85 Stat. 97, from the date the Contractor furnishes to the Contracting Officer his written appeal under the Disputes clause of this contract, to the date of (1) a final



judgment by a court of competent jurisdiction, or (2) mailing to the contractor of a supplemental agreement for execution either confirming completed negotiations between the parties or carrying out a decision of a board of contract appeals.

(b) Notwithstanding (a), above, (1) interest shall be applied only from the date payment was due, if such date is later than the filing of appeal, and (2) interest shall not be paid for any period of time that the Contracting Officer determines the Contractor has unduly delayed in pursuing his remedies before a board of contract appeals or a court of competent jurisdiction.

EQUAL OPPORTUNITY PROGRAM: In order to determine compliance with EEO requirements, each Bidder (or Offeror) will furnish the following information:

1. Number of Employees of Bidder (or Offeror):
  - a. ☐ Less than 50 employees.
  - b. ☐ 50 or more employees.
2. Name and location of manufacturing plant(s) where contract work will be performed (Indicate Name of Facility and Complete Address:)

---

3. Name and Location of Subcontractor(s) - (Indicate Name and Complete Address):

---

AFFIRMATIVE ACTION COMPLIANCE PROGRAM - EQUAL OPPORTUNITY PROGRAM:

The Bidder (or Offeror) represents that:

- a. He ☐ has developed and has on file ☐ has not developed and does not have on file at each establishment affirmative action programs as required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2, - or
- b. He ☐ has not previously had contracts subject to the written affirmative action program requirement of the rules and regulations of the Secretary of Labor.

UTILIZATION OF LABOR SURPLUS AREA CONCERNS: The Bidder (or Offeror) certifies, by completing whichever of the following is appropriate, THAT HE IS A:

a. ☐ CERTIFIED-ELIGIBLE CONCERN (NOTE): Where eligibility for preference is based upon stated status, the Bidder (or Offeror) shall furnish with his offer such evidence of certification as furnished by the Secretary of Labor.

b. ☐ NONCERTIFIED CONCERN - The Bidder (or Offeror) will complete the following statement, to include the geographical area, and identify the labor surplus area as "PERSISTENT" or "SUBSTANTIAL", as defined in the current U. S. Department of Labor publication "Area Trends in Employment and Underemployment".

"The Bidder (or Offeror) agrees to perform the contract or cause the contract to be substantially performed in the geographical area identified below, which is a " \_\_\_\_\_ " labor surplus area:

**GEOGRAPHICAL AREA:**

(CITY) \_\_\_\_\_ (COUNTY) \_\_\_\_\_ (STATE) \_\_\_\_\_

UTILIZATION OF MINORITY BUSINESS ENTERPRISES: The following clauses shall apply to contracts in excess of \$5,000.

(a) It is the policy of the Government that minority business enterprises shall have the maximum practicable opportunity to participate in the performance of Government contracts.

(b) The Contractor agrees to use his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract. As used in this contract, the term "minority business enterprise" means a business, at least 50 percent of which is owned by minority group members or, in case of publicly owned businesses, at least 51 percent of the stock of which is owned by minority group members. For the purposes of this definition, minority group members are Negroes, Spanish-speaking American persons, American-Orientals, American-Indians, American-Eskimos, and American Aleuts. Contractors may rely on written representations by subcontractors regarding their status as minority business enterprises in lieu of an independent investigation.

SHIPPING RATE ADJUSTMENT: Paragraph 15 of VA Form 10-1130, dated July 1970, is hereby deleted.

PRESERVATION, PACKAGING, AND PACKING LEVELS: Paragraph 101 of VA Form 10-1131 (June 1970) is hereby deleted in its entirety and the following substituted therefore:

101: PRESERVATION, PACKAGING, AND PACKING: Unless otherwise specified, preservation, packaging, and packing, shall be to a degree of protection to preclude damage to containers and/or content thereof under normal shipping conditions, handling, etc., and conforms to applicable carrier rules and regulations.

EXTERIOR MARKING: Paragraph 102 VA Form 10-1131 (June 1970) is hereby deleted in its entirety and the following substituted therefor:

102. MARKING PROVISIONS:

1. SHIPPING CONTAINERS: Containers shall be marked in accordance with Federal Standard Number 123C, April 20, 1972, and shall contain at a minimum the following:

- |                               |                                  |
|-------------------------------|----------------------------------|
| a. Federal Stock Number       | b. Item Name                     |
| c. Quantity and Unit of Issue | d. Contractor's Name and Address |
| e. Purchase Order Number      | f. Gross Weight                  |

NOTE: Contract Number and Cubic Displacement may be omitted. All other required markings listed under Paragraph S5.2.2.3(g) through (k), Federal Standard 123C, shall apply as applicable. Containers shall be marked with characters and figures not less than 3/8 inch in height. Where space does not permit this, characters and figures proportionately smaller in size shall be used, but shall not be less than 3/32 inch high. Marking larger than 3/8 shall be used when required by CFR (See paragraph S4.2 of the Standard).

2. INTERMEDIATE CONTAINERS: Containers shall be marked with regular commercial markings that identify the "ITEM" and "QUANTITY", thereof, or shall be marked with the "FEDERAL STOCK NUMBER, ITEM NAME AND QUANTITY".

3. HAZARDOUS MATERIAL MARKING: Marking as required by CFR, outlined in paragraph S4.1 and 2, Federal Standard 123C, shall be applied as applicable to UNIT and INTERMEDIATE containers, unless otherwise specified in the contract or applicable specification.

4. SPECIAL MARKING: Marking of this nature, if any, shall be as otherwise provided in the contract or applicable specification, all being within the scope of the applicable provisions of Federal Standard 123C.

5. DUAL FEDERAL STOCK NUMBERS: Dual Federal Stock Numbers as required by footnote 1, paragraphs S5.2.2.1(a), 2(a), and 3(a) are not required and will not be listed on the purchase orders issued against the contract.

NONCOMPLIANCE WITH PACKAGING, PACKING, AND/OR MARKING REQUIREMENTS: Paragraph 103 of VA Form 10-1131 (June 1970) is hereby deleted in its entirety and the following substituted therefore.

NONCOMPLIANCE WITH PACKAGING, PACKING, AND/OR MARKING REQUIREMENTS: Failure to comply with the packaging, packing, and marking requirements indicated herein, or incorporated herein by reference, may result in rejection of the merchandise and request for replacement, or repackaging, repacking, and/or marking. The Government reserves the right without obtaining authority from the Contractor to perform the required repackaging, repacking, and/or marking services and charge the Contractor therefor at a rate of \$11 per man-hour for the first or fractional hour and \$6 for any succeeding or fractional hour, or have the required repackaging, repacking, and/or marking services performed commercially under Government orders and charge the Contractor therefor at the above rates. In connection with any discount offered, time will be computed from the date of completion of such repackaging, repacking, and/or marking services.

COMMUNIST-CONTROLLED AREAS: Paragraph 4 of VA Form 10-1130 (July '70) is hereby deleted in its entirety.



SPECIAL TERMS AND CONDITIONS

SCOPE OF CONTRACT: This proposal covers Veterans Administration requirements for hearing aids from date of award thru September 30, 1975.

The bidder (or offeror) represents, by checking the appropriate block that he will / / will not / / accept orders from other civil agencies and departments of Federal Government. With acceptance, all provisions of the solicitation shall also apply with respect to orders placed by other Federal Activities. Failure to complete this statement shall constitute acceptance, where upon all provisions of this solicitation shall apply, and each order placed by any other Federal Agency or Department shall be honored.

## PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA:

a. If the Contracting Officer determines that any price, including profit or fee, negotiated in connection with this contract or any cost reimbursable under this contract was increased by any significant sums because the Contractor, or any subcontractor pursuant to the clause of this contract entitled "Subcontractor Cost or Pricing Data: or "Subcontractor Cost or Pricing Data - Price Adjustments," or any subcontract clause therein required, furnished incomplete or inaccurate cost or pricing data or data not current as certified in his Contractor's Certificate of Current Cost or Pricing Data, then such price or cost shall be reduced accordingly and the contract shall be modified in writing to reflect such reduction.

b. Failure to agree on a reduction shall be a dispute concerning a question of fact within the meaning of the "Disputes" clause of this contract.

(NOTE: Since the contract is subject to reduction under this clause by reason of defective cost or pricing data submitted in connection with certain subcontracts, it is expected that the contractor may wish to include a clause in each such subcontract requiring the subcontractor to appropriately indemnify the contractor. It is also expected that any subcontractor subject to such indemnification will generally require substantially similar indemnification for defective cost or pricing data required to be submitted by his lower tier subcontractors.)

## AUDIT PRICE ADJUSTMENTS:

a. This clause shall become operative only with respect to any change or other modification of this contract which involves a price adjustment in excess of \$100,000 unless the price adjustment is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

b. For purposes of verifying that certified cost or pricing data submitted in conjunction with such a contract change or other modification was accurate, complete, and current, the Contracting Officer, or any authorized representatives, shall, until the expiration of 3 years from the date of final payment under this contract, or of the time period for the particular records specified in Part 1-20 of the Federal Procurement Regulations (41 CFR Part 1-20) whichever expires earlier, have the right to examine those books, records, documents, papers, and other supporting data which involve transactions related to this contract or

which will permit adequate evaluation of the cost or pricing data submitted, along with the computations and projections used therein.

c. The Contractor agrees to insert this clause, including this paragraph (c), in all subcontracts hereunder which when entered, exceed \$100,000 when so inserted, changes shall be made to designate the higher-tier subcontractor at the level involved as the contracting and certifying party, to add "of the Government prime contract" after "Contracting Officer", and to add at the end of (a) above, the words, "provided that the change or other modification to the subcontract results from a change or other modification to the Government prime contract."

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"B" RELATIVE RESPONSE CHART
"C" GEOGRAPHIC REGIONS FOR DEALERS
"D" MANUFACTURER'S INSTRUCTION SHEET FOR HEARING AID SETTINGS AND ADJUSTMENTS
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"N" INSTRUCTIONS FOR ADJUSTING FRAMES FOR REGULAR AND FRONT WIRED EYEGLASS TYPE HEARING AIDS

PART IA. GENERAL

1. Part I of this solicitation includes all pertinent information relating to the sampling, measurements, evaluation and selection procedures to be used by the VA in obtaining an adequate variety of the highest quality hearing aids for issue to hard-of-hearing beneficiaries.

2. In this program, the VA will submit to the National Bureau of Standards three (3) samples of each of the various hearing aids obtained from the hearing aid manufacturers. The NBS will measure each instrument for a number of acoustic and electronic factors and submit the resulting raw data to the VA. Upon receipt, this data will be subjected to statistical and comparative analysis. Those hearing aid models which are clinically acceptable and which qualify on the basis of these analyses will be considered for contract.

3. Hearing aid models are evaluated in competition with others in their category. Rather than establishing specifications, it will be noted that actual physical performance is emphasized. In this manner, we take advantage of the hearing aid industry's continuing research and development activities toward providing better hearing for those individuals having hearing disabilities. Manufacturers may feel free to submit any comments, constructive criticisms or suggestions regarding this program.

4. It is essential that participants read all conditions, provisions and instructions CAREFULLY to avoid making any error or omission which would cause disqualification.

5. ALL DATES FOR SUBMISSION AND PARTICIPATION ARE FINAL. EXTENSIONS OR EXCEPTIONS WILL BE GRANTED ONLY IN INSTANCES WHERE, IN THE OPINION OF THE VA, TREATMENT AND SERVICE FOR VETERANS WOULD OTHERWISE BE JEOPARDIZED OR IMPAIRED.

6. The following policy will govern the release of any information resulting from this program:

a. The Veterans Administration reserves the right to make public, in such a manner and form and upon such conditions and terms as it deems appropriate in the public interest, all, or any part, of the measurement and evaluation data derived under this program and resulting from this solicitation, whether or not a purchase order is issued. Such data may be released without the prior consent of, or notice to, a manufacturer submitting instrument for testing. The Veterans Administration will furnish each manufacturer, without request, the raw performance data on sample instruments submitted by him; and, upon request and reimbursement of expense incurred, will furnish the results of the tests on other manufacturer's samples for comparison.

b. It is understood, of course, that neither the data furnished to a manufacturer nor the qualification for purchase or purchase of his instruments shall be considered or used in advertisements or other public representation as an endorsement by the National Bureau of Standards or the Veterans Administration of his instruments over his competitors.



## B. DEFINITIONS

1. "Conventional" or "On-the-Body" hearing aid types (OB) shall refer to those instruments which have been designed primarily to be worn attached to the clothing or suspended on the body by use of a hearing aid garment. The fact that such an instrument is small enough to be worn on the head by means of a headband, as an attachment to conventional spectacles, or worn in the hair by use of special devices, will not cause the hearing aid to be classified as an on-the-head type instrument. (See Fig. 1 Exhibit "I").

2. "On-the-head" or "Ear-Level" hearing aids shall refer to those instruments which are specifically designed to be worn in immediate proximity to or in the ear, and which by design or construction are limited solely to on-the-head use. They shall be categorized as follows:

a. "Eyeglass" Type (EG) refers to any hearing aid designed as an integral part of an ophthalmic lens frame.

(1) "Regular" Eyeglass Type (EG/REG) refers to a hearing aid model which has all hearing aid components in a single temple piece "right" or "left". (See Fig. 2, Exhibit "H").

(2) "Bone Conduction" Eyeglass Type hearing aid (EG/BC) refers to any model in which both the bone conduction oscillator and other hearing aid components are contained in a single temple or in which the bone conduction oscillator is in one temple with hearing aid components in the opposite temple, all connected as a single unit through appropriately wired frame front. "Right" or "left" is determined by the side on which the oscillator is worn.

(3) "CROS" Type hearing aid (EG/CROS) refers to an eyeglass type hearing aid having a receiver located in one temple and a microphone located in the opposite temple. "Right" or "Left" is determined by the side on which the receiver is worn.

(4) "BICROS" Type hearing aid (EG/BICROS) refers to an eyeglass type hearing aid having a microphone in each temple and a receiver in only one temple. "Right" or "Left" is determined by the side on which the receiver is worn.

b. "Over-the-Ear" or "Behind-the-ear" Type (OE) shall refer to a hearing aid designed to be worn on the head and suspended over the ear with the receiver cord or tube extended to, or into, the external ear canal. (See Figures 3 and 4 - Exhibit "H").

c. "In-the-Ear" Type (IE) shall refer to a hearing aid designed so that all components are contained in a single or multiple piece unit, the whole of which is to be worn within the confines of the anatomical boundaries of the external ear. These instruments will be evaluated in the appropriate power category in competition with other hearing aids. (See Fig. 5, Exhibit "H").

3. A "model" shall refer to any group of hearing aids manufactured with the same components and having certain specific characteristics designated by the manufacturer.

4. "Performance of a Model" - for purposes of this program shall be considered as the average performance of the three samples submitted and NOT the performance of a single instrument.

5. "Defective Model" is one for which any three of the original sample instruments or their replacements are considered by the VA to be inoperable or not sufficiently responsive to permit performance measurements under the procedures outlined in Exhibit "G".

6. "Temple Extensions" shall refer to that portion or component part of an eyeglass type hearing aid which serves to connect the eyeglass type transmitter unit to an eyeglass front, (See Fig. 2, Exhibit "H").

7. "VA" as used herein refers to the Veterans Administration.

8. "Clinic" as used herein refers to Audiology and Speech Pathology Clinics operated by or under contract to the Veterans Administration.

9. "New Models" as used herein will refer to:

a. Any new instrument developed by the manufacturer and designated by the assignment of a new name or model number, or

b. Any contract model hearing device in which the manufacturer has instituted mechanical or electronic changes which may alter its performance.

10. "Dealers" as used herein refers to the contractor's branches, agents, distributors and/or dealers.

11. "Supply Depot" as used herein refers to the Veterans Administration Supply Depot, Moline, Illinois.

12. "Complete Hearing Aid" as used herein will refer to:

a. An on-the-body aid (conventional type aid) consisting of a transmitter, appropriate receiver, three (3) thirty (30) inch cords, one (1) hearing aid jewel or presentation case, AND ONE (1) APPROPRIATE CAPSULE GARMENT - UNIVERSAL MALE TYPE, IF ITS USE IS RECOMMENDED BY THE MANUFACTURER.

b. An over-the-ear aid (all of the behind-the-ear types, including those attached to headbands or other on-the-head devices, exclusive of eyeglass types) consisting of a transmitter, three (3) sections of plastic tubing of appropriate length and size and a suitable jewel or presentation case. Tubing MUST have adaptor nuts attached. Instruments requiring rigid or semi-rigid connectors must be furnished with such connectors attached. (See Fig. 4, Exhibit "I").

c. A regular eyeglass type hearing aid consisting of one (1) active temple; one (1) matching dummy temple; three (3) sections of plastic tubing of appropriate length and size with adaptor nubs attached for fitting tubing to conventional type ear mold; one (1) set of temple hinges or one set of maximum length "temple extensions" including hinges separately, and one (1) eyeglass hearing aid case (suitable for containing the total eyeglass hearing aid after eyeglass fronts have been added). EYEGLASS FRONTS AND OPHTHALMIC LENSES ARE NOT INCLUDED AS PART OF A COMPLETE REGULAR EYEGLASS TYPE HEARING AID.

d. A "CROS" eyeglass type hearing aid composed of one (1) standard size eyeglass front appropriately wired; two (2) standard length temples having hearing aid components in each, including a receiver located in one temple and a microphone located in the opposite temple; all properly wired and assembled to form a single unit; three (3) sections of plastic tubing of appropriate length and size without adaptor nubs. The designation "right or left" will be determined by the location of the receiver. OPHTHALMIC LENSES ARE NOT INCLUDED.

e. A "BICROS" eyeglass type hearing aid composed of one (1) standard size eyeglass front appropriately wired; two (2) standard size temples containing hearing aid components including a microphone in one temple plus a receiver and a microphone in the opposite temple; all components wired and assembled to form a single unit; three (3) sections of plastic tubing of appropriate length and size with adaptor nub attached. The designation "right" or "left" will be determined by the location of the receiver.

f. An in-the-ear aid in which all electronic components are contained in a single or multiple piece unit, the whole of which is confined within the anatomical boundaries of the external ear; and one set of universal ear inserts or fitting pieces required for testing these instruments on deafened veterans.

13. A "Sample Hearing Aid" shall refer to a complete hearing aid as described in paragraph B 12, above, and bearing a specific model name or number designated by the manufacturer.

14. A "Sample Hearing Aid Model" shall refer to the composite representation of the three individual sample hearing aids submitted for these measurements.

15. SSPL - The abbreviation for "Saturation Sound Pressure Level".

16. "Stock Item" as used or referred to herein means any complete hearing aid or hearing aid component carried in the manufacturer's regular inventory and not requiring special ordering.

#### C. QUALIFICATIONS - MANUFACTURERS:

1. Samples and quotations will be considered only from those manufacturers who (a) have been actively engaged in the business of manufacturing hearing aids for a period of not less than three (3) years; (b) have established bona fide dealers or distributors in most of the major cities of the United States, with not less than seven (7) such dealers or distributors located within each of the four (4) VV designated geographic regions for dealer representation as shown on Exhibit 'C'; (c) have submitted samples in accordance with the provisions herein; and (d) are in a position and willing to render factory or authorized repair dealers repair services.



2. For purposes of this contract, U. S. distributors of foreign-made hearing aids will be included in the term "manufacturer". Only one distributor shall be permitted to represent the manufacturer.

3. Both "distributors" and "manufacturers" of foreign-made hearing aids must meet the same requirements which have been established for domestic manufacturers, except that only one "dealer organization" as required in paragraph 1 (b), above, will be accepted under this contract.

D. REQUIREMENTS FOR MANUFACTURERS' PARTICIPATION:

1. Companies interested in being considered for a VA contract for the contract period, must comply with the following requirements and return the necessary forms postmarked not later than November 15, 1973 to: Chief, Marketing Division, Administrative Medical Supplies and Equipment, VA Marketing Center, P.O. Box 76, Moline, Illinois 60141.

a. Complete and sign in quadruplicate Exhibit "D", Manufacturer's Instruction Sheet, for each model to be considered.

b. Complete and sign in triplicate Exhibit "E", Manufacturer's Qualification Sheet.

c. Complete and sign in triplicate Exhibit "F", Authority for VA Representative to pick up samples from factory. One set of forms for each sample model to be submitted. Entries must coincide with those shown for the complete model listed on Exhibit "D".

d. Furnish four sets (4) of available technical data for each model to be submitted. Each technical data should include information concerning fitting instructions, frequency response curves and any other information pertaining to the operation of the instruments which is normally furnished to dealers or agents.

NOTE: Any manufacturer not fulfilling these requirements by November 15, 1973 will be excluded from further participation in the VA Hearing Aid Evaluation Program for Contract Year 1975.

2. Requirements for Hearing Aid Models to be submitted:

a. Availability: Models submitted must be instruments which will be available to the general public through the manufacturer's dealers as of January 1, 1974. If any of these models are not generally available through dealers on this date, the instruments will be subject to disqualification from this program.

b. Clinical Acceptability: Only clinically acceptable hearing aids will be considered. Clinical unacceptability will be based on (1) poor physical characteristics as related to use in a clinic situation (2) any external controls which do not have permanent markings (preferably imprinted and inked), and (3) poor physical characteristics as related to its use by the wearer. Other factors such as exposed batteries, obscure or inaccessible external controls, objectionable or grotesque design features, etc., are also examples of criteria which will be utilized in making determinations of clinical unacceptability.

c. Telephone Pick-Up Feature: The telephone pick-up will be a requirement for clinical acceptability for all on-the-body hearing aids and those on-the-head hearing aids (except in-the-ear CROS, BICROS, and HIGH FREQUENCY REPHASIS models) which fall into the moderate and strong power categories. While a telephone pickup might be useful, it is not a requirement for clinical acceptability in the mild power category.

NOTE: Although not a requirement, it is preferred that BICROS models have a telephone pick-up.

d. Serial numbers must be imprinted or engraved directly on the hearing aid device in a readily accessible area.

e. If regular eyeglass hearing aid temple extensions are designed to be adjustable for length by cutting and attaching the hinge, they must be furnished WITHOUT THE HINGES ATTACHED. These temples or temple extensions must be designed so as to permit location of the hinge at the proper prescription length in a manner that will result in the same finished appearance that would prevail had the piece not been cut.

f. Temples, either maximum length single units or maximum length multiple piece units, shall be furnished with suitable arrangements for placement of hinges at increments not greater than 1/8", covering a range of 1" to 1-1/2". For example, any hinge recess shall be in the shape of an elongated groove of appropriate dimensions to permit attachment of the hinges at the proper temple length as required by the ophthalmic prescription. Other methods for temple length selection will be considered only if they are determined to be compatible with VA Clinic use.

g. Temple portion of eyeglass hearing aid shall be free from any decorative decals, engraving, or other conspicuous markings.

h. In those instances where active and dummy temples for regular eyeglass hearing aids are composed of more than a single section, they shall be furnished completely assembled and in maximum length available, without hinges attached. In each instance hinges shall be included separately and the hinge end of the temple extension shall be so designed as to permit arbitrary location of the hinge to satisfy ophthalmic prescription requirements for temple length. (See Fig. 2, Exhibit "I").

i. All external hearing aid receivers and adaptor nubs for plastic tubing must fit the standard bushing in the conventional type ear mold. Where the receiver nubs fail to meet this requirement, suitable adaptors must be furnished by the contractor, firmly attached to the receiver at the factory.

j. Battery sizes required for use in hearing aid models submitted must be available from the standard commercial stocks of battery manufacturers. Hearing aid models using a "special" battery will not be acceptable.

k. If an over-the-ear type hearing aid is to be measured with a rigid or semi-rigid "connector" or "adaptor" inserted between the transmitter and the tubing, such "connectors" or "adaptors" must be properly put onto the instrument by the manufacturer at the time the samples are submitted. (If such hearing aid models are accepted on contract, the "connectors" or "adaptors" must be fitted to the instrument by the manufacturer before delivery to the VA).

1. If the over-the-ear and/or in-the-ear models submitted are available in colors matching light and dark skin tones, please check the appropriate block or blocks: Light skin tones ( ), color \_\_\_\_\_; dark skin tones ( ), color \_\_\_\_\_.

(1) Purchase orders will normally be for the light skin tone shade only.

(2) The bidder agrees to exchange light skin tone cases for dark skin tone cases upon request without charge to the Veterans Administration, without change of serial number if possible, and without change of any other component of the unit concerned.

m. Eyeglass type hearing aids so designed that the temples will fit either ear are preferred. While this is not a requirement, it is deemed highly desirable by the VA, since it simplifies stock maintenance.

NOTE: It is desirable, but not a requirement, that on-the-body hearing aids have large conspicuous controls and markings to facilitate use by elderly veterans and those who are unable to manipulate the controls of smaller instruments.

### 3. Samples:

#### a. Number of Samples:

(1) Three (3) complete sample hearing aids of each model will be required for these measurements to provide sufficient data on which to judge the performance characteristics of the specific model being evaluated.

(2) In order to control the number of hearing aid samples to be evaluated, manufacturers are limited to the submission of seven (7) different models - a total of 21 complete instruments selected from his line of headworn and on-the-body type hearing aids. Six of the seven models may be submitted to meet the needs described in paragraphs (a) or (b) below.

(a) Hearing aids adjusted to yield a six db per octave rise which will perform most satisfactorily under the measurements to be conducted (Exhibit "G") and usual method of evaluation (Exhibit "H").

(b) Hearing aids adjusted to yield minimum amplification below 1000 Hz and maximum amplification above 1000 Hz.

NOTE: Manufacturer must complete Item 4, Exhibit "D".

(3) The seventh model (three instruments) may be submitted for informational and clinical evaluation purposes - a hearing aid with advanced or innovative improvements. The manufacturer should submit clinical or other evidence of its efficacy, if available. THE PERFORMANCE CHARACTERISTICS OF THESE INSTRUMENTS WILL NOT NECESSARILY BE MEASURED, EVALUATED, OR REPORTED UNDER THE PROVISIONS APPLIED TO MODELS SUBMITTED TO IN SUPPLY CONTRACT (a) OR (b) ABOVE. In order to determine the adequacy with which aids meet this requirement, appropriate measurements will be conducted and analyses performed.



NOTE: If a manufacturer produces more than 7 different models, those selected for measurement should be the instruments which, in the opinion of the manufacturer, perform best under the conditions set forth under this Program. Hearing aid models designed to be worn in more than one manner will be so designated by the manufacturer, and submitted as a SINGLE MODEL ONLY. The various modes of wearing will be indicated separately.

(c) Once samples are submitted, substitutions will not be considered.

(d) If a manufacturer does not initially submit the maximum number of samples permitted, vouchers for additional samples (up to the maximum) may be offered for consideration. These additional vouchers will not be considered if received after January 1, 1974, or if the late submission will cause undue delay in the evaluation program.

b. Selection of Samples:

A representative of the VA will call at each manufacturer's factory or warehouse and select the required number of samples at random directly from stock. He will present the original copy of each authorization represented by Exhibit "F", and a copy of the Manufacturer's Instruction Sheet, Exhibit "D". A minimum, of fifty (50) instruments of each model offered must be available for the selection of samples.

c. Preparation of Samples:

(1) Upon selection of each sample by the VA representative, the serial number will be noted on his copy of Exhibit "F".

(2) The manufacturer will then be required to adjust each sample to comply with the instructions he submitted on Exhibit "D". Each sample will be so prepared in the presence of the VA representative and immediately returned to him. No electronic or mechanical testing, repair or replacement of any part or component, will be permitted on the samples selected.

(3) EACH SAMPLE WILL BE MEASURED AS IT IS RECEIVED FROM THE MANUFACTURER. NO CHANGES IN THE SETTING OF ANY COMPONENTS WILL BE PERMITTED OR THE SAMPLES WILL BE REJECTED FOR THIS REASON. ALL COMPONENTS IDENTIFIED BY THE MANUFACTURER PRIOR TO ASSEMBLY OF THIS SAMPLE MUST BE ATTACHED OR FITTED TO THE FACILITY IN ACCORDANCE WITH INSTRUCTIONS FURNISHED IN EXHIBIT "D". All tubing, connectors, adapters or other items recommended as providing the most desirable length of the total 'sound channel' must be completely assembled on the instrument as part of the factory preparation privilege.

(4) The manufacturer assumes total responsibility for the proper assembly, adjustment and setting of all sample instruments submitted for participation in the VA Hearing Aid Program. Proper selection of components to provide the best performance of his instruments must be made AT THE TIME EXHIBIT "D" IS PREPARED. No deviation from these instructions will be permitted.

d. Failure to comply with the instructions (a) through (c) above, will be considered as grounds for disqualification of the individual instrument or total sample for further consideration under this solicitation.

4. Issue data: The following percentage figures for each of the power categories and types of hearing aids processed through the VA Supply Depot, Hines, Illinois, are included for your information:

<u>CATEGORY</u>	<u>NO.</u>	<u>% TOTAL</u>		
STRONG	2102	15.0		
MODERATE	4961	35.4		
MILD	6950	49.6		

<u>TYPES</u>	<u>NO.</u>	<u>% TOTAL</u>	<u>% AIR</u>	<u>% BONE</u>
ON-THE-BODY	2130	15.2	92.9	7.1
OVER-THE-EAR	6853	48.9	100.0	0.0
EYEGLASS REGULAR	1527	10.9	97.6	2.4
EYEGLASS BIFOCAL	827	5.9	100.0	0.0
EYEGLASS CROSS	1681	12.0	94.0	6.0
IN-THE-EAR	995	7.1	100.0	0.0

EXPERIENCE SHOWS THAT HEADPHONE HEARING AIDS ARE ISSUED IN THE APPROXIMATE PERCENTAGES OF 51.0%, RIGHT, AND 49.0%, LEFT.

PERCENTAGES ARE APPROXIMATE AND ARE BASED ON A TOTAL OF 14,013 HEARING AIDS PROCESSED THROUGH THE VA SUPPLY DEPOT, HINES, ILLINOIS, DURING FISCAL YEAR 1973.

#### E. HEARING AID MEASUREMENTS:

1. Ordinarily all hearing aids will be subjected to the acoustic and electronic measurements outlined in Exhibit "G".

2. In addition, the performance of certain aids may be measured at the Biocommunications Laboratory, University of Maryland, under contract to the VA. The unique testing environment and equipment at the University of Maryland will be used by IHS and/or VA personnel in making these measurements.

3. Eyeglass hearing aids will be measured as monaural instruments only, either right or left.

4. All hearing aids will be measured at the nominal voltage for the particular type and size battery recommended by the hearing aid manufacturer for use in the sample instruments submitted.

5. Each hearing aid will be measured as received from the factory. It will be manufacturer's responsibility to determine which items, settings, or adjustments will enable his hearing aid to perform most satisfactorily under the measurements to be conducted (Exhibit "G"). The information in paragraph 3(2) (a) and (b), page 15, describes the most desirable gain versus frequency responses for the purpose of this program.

NOTE: See Exhibit "J" - Special Test Mounting for In-The-Ear Models.

F. PERFORMANCE STANDARDS:

1. General:

a. For purposes of these measurements, the performance of a "model" will be considered as the average performance of the three (3) samples submitted, not just the performance of a single instrument.

b. In instances where all three of the original individual sample instruments of a given model are considered by the VA to be "defective", that "model" shall be immediately disqualified and rejected for further consideration and no replacements requested. In instances where less than three of the original individual sample instruments are considered by the VA to be "defective" a replacement will be requested for each individual instrument concerned. A penalty of five (5) points will be deducted from the final performance score for any kind of defect for the first defective aid and an additional twelve and one-half (12.5) points will be deducted for the second defective aid. However, under NO circumstances will replacements be permitted for more than two defective individual instruments of any given "model" submitted.

2. Performance Requirements:

a. Gain: A "model" must have not less than 29 decibels of gain. (Does not apply to high frequency emphasis aids - See note below)

b. Saturation Sound Pressure Level: A "model" must have an SSPL of not less than 97 decibels.

c. Signal-to-Noise Ratio: Any "model" hearing aid must have a signal-to-noise ratio of at least 34 decibels. However, a tolerance of minus two decibels (-2db) will be allowed.

d. Signal-to-Hum Ratio: Any "model" hearing aid must have a signal-to-hum ratio of at least 34 decibels. However, a tolerance of minus two decibels (-2db) will be allowed.

e. Power Categories: These criteria have been evolved solely for VA use in the selection of hearing aids for treatment of hearing impaired veterans. The power category to which a given model is assigned will be based on the actual measurements for average gain and average SSPL without regard to the power category designation of the manufacturer. The average of the measurements for the three instruments of any given model must satisfy the requirements for gain and SSPL for one of the categories listed below:

POWER CATEGORIES FOR VA HEARING AID EVALUATIONS

<u>CATEGORY</u>	<u>AVERAGE GAIN</u> (sine wave signal)	<u>AVERAGE SSPL</u> (random noise signal)
Mild	31 - 52db	99 - 113 db
Moderate	41 - 62db	120 - 129 db
Strong	58 db or above	130 db or above



The tolerance limit for average gain and average SCPL is plus or minus two decibels. This tolerance has not been included in the figures shown.

NOTE: These are not mutually exclusive categories. Aids whose average gain and average SCPL are such as to place them in two categories will be evaluated in both categories. THE AVERAGE GAIN OF AN INSTRUMENT IS DETERMINED BY THE MEAN OF THE GAIN VALUES FOR THE NINE BANDS WITH MIDPOINTS AT THE FOLLOWING FREQUENCIES: 630, 770, 920, 1070, 1230, 1400, 1570, 1740, and 1920 Hz. Aids with high frequency emphasis will not necessarily be placed into any of the above categories.

#### G. EVALUATION PROCEDURES: (See Exhibit "I")

1. The Raw Score - The raw score obtained on each measurement will be statistically treated and assigned weighting factors determined by a group of nationally recognized Audiologist and Psychicists serving on the Panel on Hearing Aid Performance, Committee on Prosthetics Research and Development, Division of Medical Sciences of the National Research Council - National Academy of Sciences. For example, one test item might be given a weighting factor of 1.0 while another might be assigned a factor 0.5.
2. The Weighted Scores - The weighted scores obtained by three hearing aids of each sample model are averaged for each measurement. The average score represents the performance of that model on each of the individual measurements.
3. Index of Characteristics - The average weighted scores on each of the measurements are summed to give the measure of total performance achieved by the hearing aid model. This score is designated as the index of characteristic
4. Defective Instrument Score - The Index of Characteristics will be adjusted according to the number of defective instruments within a model. (See Section F 1 b).

#### H. DISQUALIFICATION:

1. A hearing aid "model" failing to meet any one of the performance standards or qualification requirements is subject to disqualification for further consideration by the VA.
2. A hearing aid "model" failing to score above the mean in its power category will not ordinarily be further considered for acceptance on VA contract.
3. A hearing aid "model" having physical or electronic characteristics which are deemed to be undesirable or incompatible with VA procedures will be disqualified as being clinically unacceptable.
4. A hearing aid "model" which is designed to use only specially designed or odd-sized batteries not normally manufactured or stocked by battery manufacturers is subject to disqualification.

5. EXCESSIVE INCIDENCE OF POOR HEARING AID REPAIR SERVICE FURNISHED AND/OR EXCESSIVE DELAYS IN PROVIDING THE SERVICES CONTRACTED FOR UNDER THE IMMEDIATE PRIOR YEAR'S HEARING AID REPAIR CONTRACT PERIOD WILL BE INJECTED SUFFICIENT CAUSE TO REJECT THE BIDDERS' ENTIRE SUBMISSION UNDER THIS SOLICITATION.

6. Ordinarily, a hearing aid model which oscillates at full volume control setting will not be accepted on contract.

I. SELECTION FOR CONTRACT NEGOTIATION:

1. The VA will negotiate contracts for a variety of instruments;
  - a. Strong Power - Approximately five models consisting of on-the-body or qualified head-worn instruments.
  - b. Moderate Power - Approximately six models, one of which may be an on-the-body type, three of which may be headworn instruments other than eyeglass models, and two of which may be eyeglass type hearing aids.
  - c. Mild Power - Approximately six models, one of which may be a body-type instrument.
  - d. Cros and Bicos Aids - Approximately two models of each.
  - e. In-the-Ear Models - Approximately two models.
  - f. Aids with High Frequency Emphasis - Approximately three models.
  - g. Directional Aids - Approximately two models.
2. Within the limitations set forth in paragraph I. 1. above, only one model of any one type will be eligible for competition in the same category. For example, if a manufacturer has two on-the-body models which qualify in the same category, only one of these will be selected by VA for competition with other manufacturers' products in the same category. On the other hand, if a manufacturer has an on-the-body model and an over-the-ear (or an eyeglass type) model which qualify in the same category, both models will be acceptable for competition against other instruments of the same respective type in the same category.

3. In addition, the VA will negotiate contracts for other instruments which it deems necessary for special medical needs of hearing impaired veterans. These aids ordinarily will have undergone formal acoustic and electronic measurement or informal clinical evaluation.

J. SUMMARY AND CONCLUSIONS:

1. As indicated in paragraph A. 6, Part I, above, the Veterans Administration now reserves the right to release any test data resulting from tests of instruments submitted for testing by manufacturers, even though no purchase order is issued.

2. It must be clearly understood that any hearing aid model accepted for participation in the VA Hearing Aid Program does not automatically qualify for consideration for acceptance on VA contract. On the other hand, any hearing aid model not specifically rejected and the manufacturer so notified, shall be judged acceptable to the VA from the standpoint of quality, whether it is or is not finally accepted on contract.

3. At the conclusion of the measurements and evaluations, it is intended that one of the sample instruments of each model will be returned to the manufacturer. The two remaining samples will be retained permanently by the Veterans Administration for research purposes, and will not be returned to the manufacturer.

## PART II

### A. GENERAL

1. Part II provides for the submission of bid quotations and also describes and establishes the requirements and special conditions for participation in the VA Hearing Aid Program for the Contract Year 1975.

2. Each bidder is furnished additional pages upon which he may submit under Schedules "A" and "B", his proposed bid prices for each complete hearing aid and the component parts listed thereon. Bid prices are requested on each model submitted.

3. Failure to comply with the provisions of either of these Parts will automatically disqualify a manufacturer from further participation in the VA Hearing Aid Evaluation Program for the contract period.

4. Each hearing aid manufacturer wishing to participate in the VA Hearing Aid Program for the above period MUST COMPLETE AND RETURN THIS PART OF THE QUOTATION SOLICITATION NOT LATER THAN November 15, 1973. The date for submission is final. Extensions or exceptions will be granted only in instances where, in the opinion of the VA, treatment and service for veterans would otherwise be jeopardized or impaired.

5. BIDDERS WILL NOTE THAT THIS SOLICITATION DOES NOT INCLUDE REPAIR SERVICE Repair services for Contract Year 1975 will be covered in a separate contract.

### B. REQUIREMENTS

1. The bidder must submit with his quotation a list of dealers through whom business may be transacted if awarded a contract under Schedule "A". He will also submit full particulars concerning this contract to such dealers, authorizing and instructing them to furnish the supplies and services covered by the contract to the VA at the prices and in accordance with conditions hereof.

2. Within 30 days after award of contract, the manufacturer will forward seventy five sets of available technical data on each hearing aid model accepted, to the Chief, Central Audiology and Speech Pathology Program (608/184), VA Hospital, 59 Irving Street, N.W., Washington, D. C. 20422.



### 3. REQUIREMENTS AFTER CONTRACT EXPIRATION OR TERMINATION

a. The contractor agrees, if he remains in business and his contract expires or is terminated for any reason, to maintain factory repair service on all instruments procured hereunder, for a seven-year period from the date of such expiration or termination, with the understanding that the charges for such repairs will not exceed the lowest cost imposed by the contractor on any agent of the contractor or on any other company or individual at the time of making such repairs.

b. Upon expiration of a contract or if for any reason a contract is terminated and a new contract is not consummated the contractor agrees to accept the return of a maximum of one hundred of each model of his make hearing device, accessories, and extra dummy temples in stock in clinics and/or the Supply Depot, provided that such models are returned to the contractor within one hundred and twenty days of the expiration or termination of the contract. For purposes of this section of the contract, hearing aids designed as "rights" and "lefts" will be considered as separate models even though the basic instrument and the model number are the same. The contractor further agrees to refund an amount for the returned items equal to the original price paid by the VA, less the total cost of repairing any devices which are not in a condition as good as they were at the time of purchase. Checks shall be made payable to the VA.

### C. SPECIAL CONDITIONS

#### 1. DELIVERY TERMS AND DISCOUNTS

a. Delivery - Delivery of new hearing devices and accessories will be made F.O.B. at and within the doors of the VA field stations, contract clinics or VA Supply Depot designated on the purchase order.

#### b. TIME OF DELIVERY AND DISCOUNTS - SCHEDULE "A"

HEARING AIDS PURCHASED UNDER SCHEDULE "A" MUST BE AVAILABLE FOR DELIVERY UPON RECEIPT OF PURCHASE ORDER.

#### c. TIME OF DELIVERY AND DISCOUNTS - SCHEDULE "B"

(1) The initial purchase order for the contract period shall be for a minimum of 50 complete instruments of each model accepted on contract. The contractor agrees to ship this minimum order so as to reach the VA Supply Depot, Moline, Illinois, no later than 45 days after receipt of the initial ordering document. Delivery of the remaining number of instruments of each model (if any) on the initial order, and all subsequent orders, will be required as shown in Columns D and E of the chart below. Special discounts for volume purchases will be allowed as shown by the manufacturer in the empty spaces in Column B of the chart. The discount will be applied to the full amount of the purchase order regardless of the date of shipment of the order in whole or part.

A.	B.	C.	D.	E.
AMOUNT OF PURCHASE ORDER	VOLUME DISCOUNT	DELIVERY TIME INITIAL 50 AIDS	DELIVERY TIME REMAINDER OF INITIAL ORDER	DELIVERY TIME FOR SUBSEQUENT ORDER
(a) Up to \$1,000	-----	45 days	30 days	30 days
(b) \$1,000.01 to \$5,000	-----	45 days	30 days	30 days
(c) \$5,000.01 to \$15,000	-----	45 days	40 days	40 days
(d) \$15,000.01 to \$30,000	-----	45 days	50 days	50 days
(e) \$30,000.01 and up	-----	45 days	60 days	60 days

(2) THE AVERAGE OF THE DISCOUNTS OFFERED IN ITEMS (a) THROUGH (c) ABOVE WILL BE USED IN CALCULATING THE COST OF COMPLETE INSURANCES FOR PURPOSES OF DETERMINING THE COST PER POUND OF QUALITY, A FIGURE WHICH MAY BE USED TO DETERMINE CONTRACT AWARDS.

(3) Time Discounts if offered on page 1 of the quotation will be applied on the total amount of the purchase order after deduction of all volume discounts.

## 2. SPLIT DELIVERIES

a. Indicate in the space provided below whether purchase orders requiring split deliveries will be accepted. (CHECK ONE).

(1) ( ) YES (2) ( ) NO

b. If answer is YES, fill in the spaces in the following:

MAXIMUM NUMBER OF SHIPMENTS PER PURCHASE ORDER \_\_\_\_\_  
MAXIMUM OVER-ALL PERIOD OF TIME FOR COMPLETE DELIVERY OF PURCHASE ORDER \_\_\_\_\_  
: FINAL DELIVERY \_\_\_\_\_ CALENDAR DAYS.

## 3. PRICES

a. The bidder will submit prices on all items as requested in the attached schedules. Two schedules will be included: Schedule "A" purchases made through dealers by VA field stations and Schedule "B" for purchases made directly from the factory by the VA Marketing Center for delivery to the VA Supply Depot, Hines, Illinois 60141.

b. The bidder certifies that the prices quoted in Schedule "A" and "B" are not in excess of the prices charged by the bidder to its agents, the general public or other government agencies. The VA reserves the right to reject any quotation in its entirety, or any item on which the quotation is considered to be excessive or indefinite.

#### 4. PURCHASES MADE FROM AUTHORIZED DEALERS - SCHEDULE "A"

a. Under Schedule "A", VA field stations may utilize the services of authorized dealers for purchases of hearing aids, together with parts and accessories therefor.

b. The bidder will indicate by checking the appropriate block provided below, to which the purchase orders and check in payment therefor will be drawn:

- ( ) Purchase orders and checks in payment therefor will be drawn in favor of and mailed to the contractor.
- ( ) Purchase orders and checks in payment therefor will be drawn in favor of the contractor. Purchase orders will be forwarded to the designated dealers who will make delivery and forward the order to the contractor for billing. Checks in payment will be mailed to the contractor.
- ( ) Purchase orders and checks in payment therefor will be drawn in favor of the contractor. Purchase orders and checks in payment will be mailed to the designated dealers who will make delivery.
- ( ) Purchase orders and checks in payment therefor will be drawn in favor of and mailed to the designated dealers.

5. SUBSTITUTION OF PARTS - SCHEDULE "A": The purpose of this condition is to provide for purchases of all desirable combination of hearing aid component parts which are usable with the transmitter specified under "COMPLETE INSTRUMENTS", Schedule "A" of the contract. In the event a receiver, cord or accessory which is different from the standard component part specified under "COMPLETE INSTRUMENTS", Schedule "A" is ordered, the price of the substituted part will be added to the cost of the complete instrument and the price of the standard part for which the substitution is made will be deducted therefrom. Bidders are therefore requested to quote prices under Schedule "A": for all receivers, cords or accessories which are usable with the transmitter specified under "COMPLETE INSTRUMENTS", Schedule "A". Discounts, if any, will then be applied to the new total price of the instrument. Under no circumstances will parts be substituted without a specific order from the Veterans Administration.

#### 6. PURCHASES MADE DIRECT FROM FACTORY - SCHEDULE "B"

a. Hearing devices, together with parts and accessories therefor, to be stocked in clinics, will normally be ordered by the VA Marketing Center, Hines, Illinois, directly from the manufacturer at the prices quoted in Schedule "B".

b. Delivery of hearing devices and accessories under Schedule "B" will be made to the VA Supply Depot, Hines, Illinois, unless otherwise specified in the purchase order. The invoice submitted by the contractor, covering each hearing aid purchase, must list the serial number of each hearing aid being delivered.



c. All instruments delivered to the VA Supply Depot, Miness, Illinois, must be "set and adjusted" at the factory. These settings and adjustments must conform with those recommended by the manufacturer for the VA Hearing Aid Program, Contract Year 1975.

d. Manufacturers whose eyeglass hearing aids are accepted on contract will be required to:

(1) Furnish each VA and Contract Audiology Clinic listed in Exhibit "K", as well as any new clinics added during the contract period, one universal fitting front consisting of an average size eyeglass front without lenses and with a universal fitting device attached to the hinge to hold the hearing temples in place during clinical examination. Fitting devices must accept full length one piece eyeglass type hearing aids and/or eyeglass hearing aids submitted with full length temple extensions attached. Manufacturers will be required to furnish temple extension fitting kits if available.

NOTE: The contractor will not be required to furnish new fitting fronts if previously furnished fitting fronts will fit the new instruments accepted on contract.

(2) Furnish each VA contract ophthalmic prescription laboratory servicing a VA installation, complete details concerning the attachment of hinges to regular eyeglass hearing aid temples.

NOTE: The VA will furnish each hearing aid manufacturer, whose eyeglass hearing aids are accepted, with a list of the ophthalmic prescription laboratories at the time an optical contract award is made.

(3) Include in each package containing a regular eyeglass hearing aid complete instructions for attaching hinges, along with detailed directions as to the specific location on the temple portion which may be used for fitting adjustments and the proper techniques to be used in shaping and adjusting the temples to fit the wearer, e.g., kind and amount of heat to be applied in each specific area, how to bend, etc. See Exhibit "N".

e. Manufacturers who have been awarded contracts for eyeglass hearing aid models having frame fronts containing components necessary to the operation of the instruments will be subject to the following additional requirements:

(1) The manufacturer will furnish, along with his bid quotation, a list of sizes of frame fronts for both male and female users which he carries as "stock" items for use with the particular model submitted. See Exhibit "L".

(2) Instruments purchased initially will be limited to one complete "standard" male size only, i.e., eye size 46 mm; bridge size 22 mm; temple length 4-1/4 inches to the bend. Female sizes will be ordered as needed. The styles available shall be limited to one standard female style having a keyhole type bridge and one standard male style having a keyhole or saddle bridge.

(3) Upon selection for issue by an audiology clinic, the manufacturer will be required to exchange, without charge, the "standard" eyeglass front and the "standard" temple extensions for similar items from his "stock" which will permit the instrument to fit the veteran's measurement requirements for eyeglass frames. The manufacturer must be prepared to stock a range of sizes which are typically requested. See Exhibit "L".

(4) Eyeglass hearing aids requiring frame front sizes other than those normally carried as "stock" items by the manufacturer will be furnished upon special request. Any additional charges for these services will be in accordance with prices quoted in this bid solicitation. See Exhibit "L".

(5) Upon selection for issue, the VA will forward to the manufacturer either the complete "standard" eyeglass hearing aid or the "standard" front and temple extensions, along with a properly prepared prescription for the veteran's eyeglass frame measurements. (lenses are not included). See Exhibit "M".

(6) Eyeglass hearing aids sent to the manufacturer for exchange of component parts, referred to above, will be completed and returned to the referring VA station within five (5) working days of the date of receipt.

(7) Manufacturers will include in each package containing a front wired eyeglass type hearing aid detailed instructions as to the techniques to be used in shaping and fitting the frames to fit the wearer, and the preferred method for the insertion and removal of lenses. Instructions must be specific regarding areas in which shaping and bending the frames may be accomplished and the methods to be used, i. e., kind and amount of heat or bending permissible, at what points, etc. See Exhibit "N".

## 7. UNITS FOR PROCUREMENT

### a. SCHEDULE "A": Prices will be quoted as follows:

(1) COMPLETE HEARING AIDS: The prices for each hearing device under this schedule will cover a complete instrument as defined in Part I, Paragraph B, 12, of this proposal, including three batteries required for the operation of the hearing aid. Quotations will not include a specially molded ear piece. Charges for an ear mold will be listed and charged for as a separate item when ordered under this schedule.

### (2) TRANSMITTER UNIT:

(a) For on-the-body types, prices shall be for a single transmitter unit including an appropriate case and garment carrier.

(b) For eyeglass types, prices shall be for one transmitter unit consisting of one active and one matching dummy temple including hinges, extensions, plates, and/or such other items as may be required for the attachment of the temples to an eyeglass front to complete one eyeglass type hearing aid, and one eyeglass hearing aid carrying case suitable for containing the complete instrument after the cathartic fronts have been added. EYEGLOSS FRONTS ARE NOT TO BE INCLUDED except for those aids in which the eyeglass front contains components necessary for operation of the aid.

(c) For over-the-ear types, prices shall be for a single transmitter unit and case.

(d) For in-the-ear types, prices shall be for a single transmitter unit and case, including one set of universal fitting pieces.

(3) RECEIVERS: Bone conduction receivers will include headband, headband pads, and other items, except cords, necessary for proper fitting.

(4) CORDS OR TUBING: Cords 30 inches long for air and bone conduction type receivers, or plastic tubing in appropriate sizes and length with adapter nubs attached for fitting to conventional ear-rolls.

b. SCHEDULE "B": The prices for each hearing device under this schedule will cover a complete instrument as defined in part I, B, 12.

8. DESCRIPTION OF BATTERIES: The bidder will furnish under Schedule "A" a description of the batteries to be used with each hearing device bid upon, giving type, voltage, etc.

9. AWARD OF CONTRACT: Paragraph 10 of Standard Form 33A, March 1969 Edition is amended to include the following:

a. Selection for contracts will be made from among those qualified hearing aid models which:

(1) Have the lowest cost per point of quality as obtained by dividing the determined cost to the VA by the Index of Characteristics (performance score) earned as a result of the measurements and evaluations, or

(2) May be deemed medically necessary to provide adequate hearing rehabilitation for deafened veterans without reference to their measurement results or cost per quality point.

b. Schedule "A": It is contemplated that awards under this Schedule will be made on those instruments and accessories accepted under Schedule "B" plus, for substitution purposes, any desired additional components usable with transmitters accepted under "COMPLETE INSTRUMENTS".

c. Schedule "B":

(1) It is contemplated that the VA will negotiate contracts for a variety of complete instruments in each of the categories in accordance with the selections indicated in paragraph I, Part I of this bid solicitation.

(2) In addition to the items referred to in sub-paragraph 9a (1) and (2) above, one bone conduction overglass model may be accepted on contract without regard to results of measurements performed under this Program.

(3) No award will be made on instruments under Schedule "B" unless the instruments are available under Schedule "A".



d. BEFORE AWARD OF CONTRACTS, IT WILL BE ASCERTAINED WHETHER EACH BIDDER HAVING ONE OR MORE ACCEPTABLE MODELS, HAS ALSO SUBMITTED AN ACCEPTABLE BID ON THE SEPARATE HEARING AID REPAIR CONTRACT. NO CONTRACT FOR NEW HEARING AIDS WILL BE APPROVED UNLESS A CONTRACT FOR REPAIR SERVICES IS ALSO APPROVED FOR THE SAME COMPANY.

#### 10. NEW MODELS

a. For the purpose of this contract, a new model hearing device will be:

(1) Any new instrument developed by the manufacturer and designated as such by the assignment of a new model number, or

(2) Any contract model hearing device in which the manufacturer has made mechanical or electronic changes which may alter its performance.

#### 11. SUBMISSION OF NEW MODELS

a. A new model may not be submitted during the contract period unless the manufacturer has a similar model on contract and designates the model as its replacement. The VA reserves the right to determine whether a changed contract model will continue as a contract item or will be classified as a new model as described in paragraph 10a (2).

b. If during the contract period a new model hearing device is developed by the contractor to replace a current contract model, he may submit this aid for testing, together with a supplemental quotation for consideration toward acceptance. All supplemental quotations must be submitted on proper forms which may be requested from the Chief, Marketing Division, Administrative Medical Supplies and Equipment, VA Marketing Center, P.O. Box 76, Moline, Illinois 60141.

c. If the new model is to replace a model which has been accepted under contract, the contractor will be required to continue to furnish the contract item for the duration of the contract, or until such time as the new model is accepted by the VA on contract. If the performance of the new model is equal to or better than the model under contract, and if the cost is no higher than the model being replaced, it will be accepted.

d. If the new model is accepted for consideration, the contractor will furnish three (3) samples, preferably on or before the date of its availability to his dealers. The three (3) complete samples, together with all basic technical data including response curves, power output, battery drain, etc., shall be forwarded to the Chief, Central Audiology and Speech Pathology Program (900/204), VA Hospital, 50 Irving St., W.W., Washington, D. C. 20422. If accepted, one (1) complete sample instrument will be returned to the bidder and the two (2) remaining samples will be retained permanently by the Veterans Administration. At the time samples of a new model are submitted, Supplemental Quotations will be submitted to the Chief, Marketing Division, at the address shown in 11b, above.

e. The contractor agrees to instruct his agents not to demonstrate any new models of hearing devices to veterans until such time as they have been tested and accepted by the VA.

12. RETURN OF MODELS BEING REPLACED: The contractor agrees to accept the return of a maximum of 100 of each transmitter, receiver, cords or tubing (sets of 3), accessories therefore, including extra dummy temples, in stock in clinics and/or the Supply Depot, Moline, Illinois, for each model being replaced by substitution, and allow an amount equal to the original net purchase price, which amount will be deducted from the purchase price of the new models, together with accessories therefore, being purchased for stock. For purposes of this requirement of the contract, hearing aids designed as "rights" and "lefts" will be considered as separate models even though the basic instrument and the model number are the same. In the event the amount to be allowed for the replaced models exceeds the amount to be paid for the replacement models, a check for the difference will be issued to the VA. The total cost for repairing any devices which are not in a condition as good as they were at time of purchase will be deducted from the credit to be allowed the VA for the replaced models. It is understood that all models will be returned within one hundred and twenty (120) days after receipt of the new models by the clinics. Models being replaced will be returned to the factory of the manufacturer as indicated below. The cost of transportation for the return of models being replaced will be assumed by the VA unless otherwise indicated by the contractor.

ADDRESS TO WHICH HEARING AIDS BEING REPLACED WILL BE SHIPPED:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

13. RETENTION OF NON-CONTRACT HEARING AIDS AND/OR ACCESSORIES: If the contractor is a successful bidder in Contract year 1975, but is not successful in obtaining a contract in Contract Year 1976, he is willing ( ) not willing ( ) to authorize the VA to retain his hearing aids and/or accessories in the VA Audiology clinics for an additional year. If agreeable, we will retain the items with the understanding that the contractor will accept their return (up to 100 of each item) within 60 days after September 30, 1976. The VA will allow 25% of the original purchase price in addition to the cost of necessary repairs, if any, to be deducted from refund required for each complete instrument returned under this special condition.

14. GUARANTEE

a. Hearing devices purchased under this contract must meet the VA performance standards for that model when delivered to the veteran. If an instrument is found to be unsatisfactory due to performance or faulty construction it will be returned to the contractor for correction, adjustment or replacement, if necessary, to give satisfactory results without further charge.

b. All transmitters and receivers shall be guaranteed from defective workmanship and/or materials for a period of two years beginning with the date of issuance to the VA beneficiary, but not to exceed three years from the date the transmitter and/or receiver is delivered to the VA ordering activity.

(NOTE:) The issue date of a hearing device is shown on the notification which is forwarded to contractors when a hearing device is issued to a veteran. If within the warranty period, a transmitter or receiver is found to be unsatisfactory due to defective workmanship and/or materials, upon return the same will be corrected, adjusted or replaced, if necessary, by the contractor without charge to the VA.

15. INVOICES: Hearing devices purchased hereunder shall be invoiced to the VA ordering office in a manner clearly indicating the schedule under which the purchase was made.

16. CANCELLATION: Delete paragraph 109 of VA Form 10-1131 and substitute the following: This proposal, if accepted shall become a contract and shall remain in force from date of award, through September 30, 1975, unless terminated in whole or in part at the request of either party after thirty days notice in writing.

17. PACKAGING, PACKING AND MARKING OF SHIPMENT OF HEARING AIDS FOR DELIVERY TO THE VA SUPPLY DEPT, HINES, ILLINOIS, 60141:

a. PACKAGING AND PACKING: . . .

(1) A complete aid as defined in Part I, Paragraph 212 will be packed in sufficient size carton to hold the aid, instruction book and accessories, if any, for re mailing to the individual clinics. Cartons shall contain adequate cushioning material to prevent damage in transit.

b. MARKING:

(1) Individual cartons containing complete aids as defined in Part I, B with the model number and Federal Stock Number as specified in the purchase order.

(2) Shipping containers shall be marked as follows:

- (a) Name, City and State of consignor
- (b) VA Purchase Order Number
- (c) Gross weight of container
- (d) Hearing Aids - Accessories

(3) In the event more than one shipping container is required, in addition to the packing indicated above, each shipping container shall be marked "1 of 2", "2 of 2", etc.

18. SOLICITATION OF BENEFICIARIES: Bidder agrees he will neither directly nor through his dealers solicit beneficiaries, but will confine these activities to the responsible official of the VA.



# EXHIBIT "A"

## HEARING AID PERFORMANCE MEASUREMENT REPORT FORM

(Data is Simulated)

DUMMY			
MODEL: ONE	TONE: H-6	EARPHONE: XYO	BATTERY: RM403
CODE	DU-22	DU-23	DU-24
SERIAL #	1122	1189	1198
DATE		Jan. 31, 1970	
MEASUREMENTS WITH			
FULL VOL CONTROL			
1000HZ GAIN DB	50.5	52.5	51.0
SSPL RANDOM NOISE			
INPUT LEVEL DB	87.0	91.5	92.5
OUTPUT LEVEL DB	120.5	122.0	121.0
MEASUREMENT WITH			
REDUCED VOLUME			
CONTROL SETTING			
1000HZ GAIN DB	50.5 (FULL)	49.5	51.0 (FULL)
HARMONIC DIST			
INPUT LEVEL DB	61.5/71.5	60.0/70.0	61.0/71.0
500HZ %	20/39	15/23	19/44
700HZ %	9/19	10/36	11/23
900HZ %	5/13	9/25	11/48
MAX DIST %	24/48	21/56	42/59
FREQ OF MAX DIST	550/550	560/1200	1500/530
S/N DB			
1000HZ SIGNAL	45	49	38
S/M RATIO			
1000HZ SIGNAL	50	56	52
BATTERY DRAIN MA			
NO INPUT	2.3	2.5	2.5
65 DB INPUT	10.4	11.3	11.4
BATTERY VOLTAGE	1.37	1.37	1.34

EXHIBIT "B"

RELATIVE  
RESPONSE  
CHART

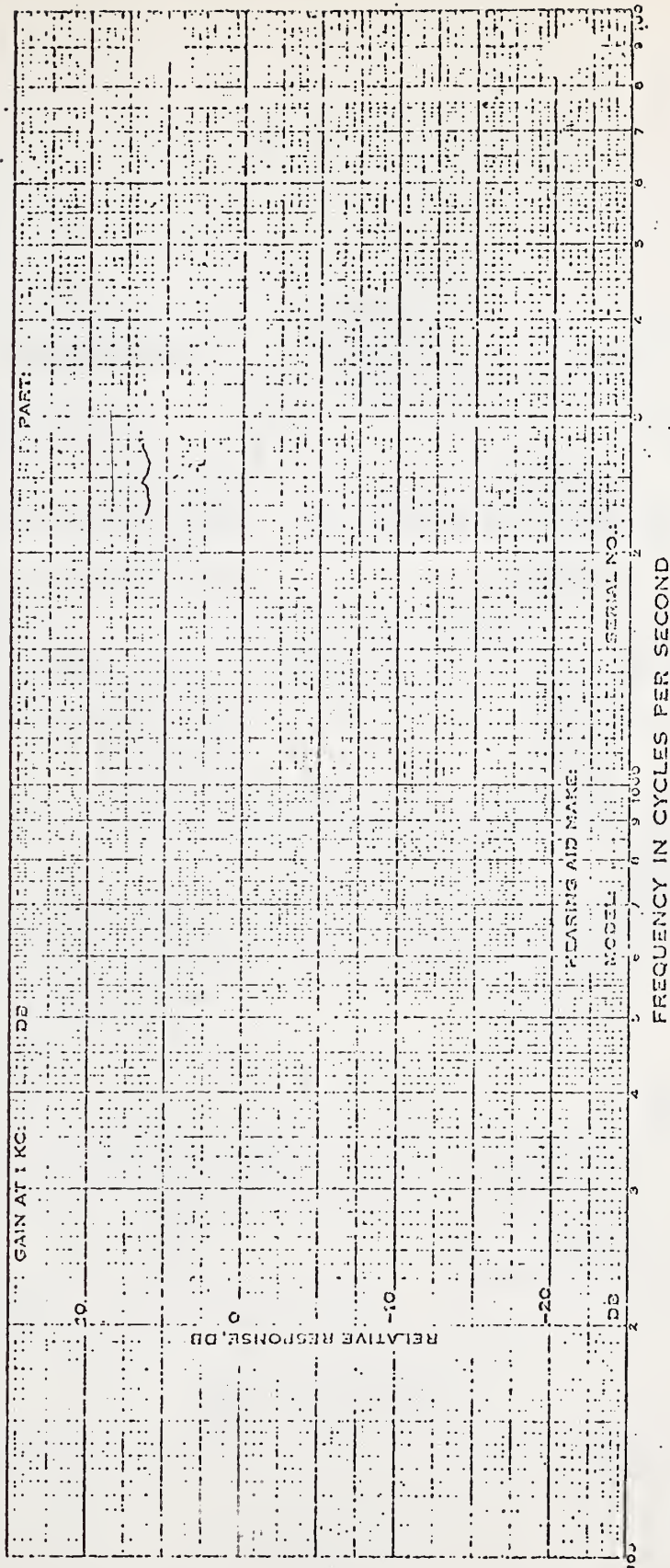


EXHIBIT "C"

GEOGRAPHIC REGIONS FOR DEALER REPRESENTATION

Region #1:

Connecticut	New Jersey
Delaware	New York
District of Columbia	Pennsylvania
Maine	Rhode Island
Maryland	Vermont
Massachusetts	West Virginia
New Hampshire	

Region #2:

Arkansas	North Carolina
Alabama	Puerto Rico
Florida	South Carolina
Georgia	Tennessee
Kentucky	Texas
Louisiana	Virginia
Mississippi	

Region #3:

Illinois	Nebraska
Indiana	North Dakota
Iowa	Ohio
Kansas	Oklahoma
Michigan	South Dakota
Minnesota	Wisconsin
Missouri	

Region #4:

Alaska	Montana
Arizona	New Mexico
California	Nevada
Colorado	Oregon
Hawaii	Utah
Idaho	Washington
Philippines	Wyoming



# EXHIBIT "D"

## MANUFACTURER'S INSTRUCTION SHEET

1. ENTER THE PRECISE NAME OR MODEL NUMBER TO BE USED TO IDENTIFY SAMPLE MODEL SUBMITTED: \_\_\_\_\_
2. DESCRIPTION OF TRANSMITTER AND ACCESSORIES:
  - a. TYPE: ON-THE-BODY ( ) EYEGLOSS: AIR BONE  
 OVER-THE-EAR ( ) REGULAR ( ) ( )  
 IN-THE-EAR ( ) BICROS ( ) ( )  
 CROS ( ) ( )
  - b. TELEPHONE PICK-UP: YES ( ) NO ( )
  - c. EXTERNAL RECEIVER TO BE USED: HEARING AID MANUFACTURER'S CODE: \_\_\_\_\_
  - d. RECEIVER CORD TO BE USED: HEARING AID MANUFACTURER'S CODE: \_\_\_\_\_
  - e. TUBING TO BE USED: SIZE \_\_\_\_\_ ID \_\_\_\_\_ OD \_\_\_\_\_  
 LENGTH\* \_\_\_\_\_ (FITTING NUBS MUST BE ATTACHED).
  - f. LENGTH OF SOUND CHANNEL. (SEE FIGS. 6 & 7, EXHIBIT "B").
  - g. SIZE AND TYPE BATTERY RECOMMENDED FOR THESE MEASUREMENTS. LIST  
 ONE ONLY:
  - h. NUMBER OF BATTERIES REQUIRED TO OPERATE SAMPLE INSTRUMENT:  
 (1) \_\_\_\_\_  
 (2) \_\_\_\_\_

AVAILABLE AS BATTERY MANUFACTURER'S STOCK ITEM: YES ( ) NO ( )  
 (DO NOT INCLUDE BATTERIES WITH HEARING AID SAMPLES).
3. INDICATE BELOW THE EXACT POSITIONS AT WHICH ALL OPERATING ADJUSTMENTS HAVE BEEN SET FOR PURPOSES OF THE HEARING AID PERFORMANCE MEASUREMENTS AND EVALUATIONS TO BE MADE UNDER THIS PROGRAM. THE SIMPLE STATEMENT, "PRE-SET", IS NOT ACCEPTABLE.
  - a. INTERNAL: \_\_\_\_\_
  - b. EXTERNAL: \_\_\_\_\_
  - c. OTHER: \_\_\_\_\_
  - d. CHECK HERE IF NONE ( )
4. THE HEARING AID MODEL LISTED IN ITEM 1, ABOVE, IS OF THE TYPE DESCRIBED IN PART I, PARACRAPH D 3 a (2) (a)       ; D 3 a (2) (b)       ; or D 3 a (3)       .
5. TYPE MANUFACTURER'S NAME AND ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
6. TYPE RESPONSIBLE OFFICIAL'S NAME AND TITLE: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

(SIGNATURE)

(DATE)

\*Length of tubing shall be measured from center line ( E ) of exit aperture on earmold nub to end of sound exit nub on hearing aid, or to sound exit end of connector, plus 1/8" for assembly to aid. Tubing length shall NOT include length of any connector required. See Fig. 7, Exhibit "H".

Sound channel length shall be measured from (b) of exit aperture on earmold nub to the base of the sound exit nub on the instrument, regardless of whether a connector is or is not a part of the total sound channel length. See Fig. 6, Exhibit "H".

EXHIBIT "E"

VETERANS ADMINISTRATION HEARING AID  
PROGRAM

MANUFACTURER'S CERTIFICATE OF QUALIFICATION

1. We do ( ) do not ( ) desire to participate in the VA Hearing Aid Program for Contract Year 1975.
2. Number of years actively engaged in the business of manufacturing hearing aids \_\_\_\_\_.
3. We do have ( ) do not have ( ) facilities to provide factory repair service within the continental United States.
4. Number of established bona fide dealers or distributors in each of the following VA designated geographic regions for dealer representation.  
(See Exhibit "C").

Region # 1 \_\_\_\_\_

Region # 2 \_\_\_\_\_

Region # 3 \_\_\_\_\_

Region # 4 \_\_\_\_\_

NAME OF MANUFACTURER: \_\_\_\_\_

SIGNATURE OF RESPONSIBLE OFFICIAL: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_



EXHIBIT "F"

1. THIS ORIGINAL COPY WILL AUTHORIZE THE BEARER (VA REPRESENTATIVE) TO SELECT AT RANDOM FROM FACTORY STOCK THREE (3) COMPLETE SAMPLES OF THE HEARING AID MODEL LISTED. EACH COMPRISED OF THE COMPONENTS SHOWN BELOW. (LIST THE COMPONENTS FOR A COMPLETE INSTRUMENT ONLY). SAMPLES AND ANY REPLACEMENT THEREOF WILL BE FURNISHED WITHOUT COST TO THE VA.
2. PRECISE TRADE NAME OR MODEL NO. OF SAMPLE MODEL: \_\_\_\_\_
3. DESCRIPTION OF TRANSMITTER AND ACCESSORIES:
  - a. TYPE: ON-THE-BODY ( ) EYEGGLASS: AIR BONE  
OVER-THE-EAR ( ) REGULAR ( ) ( )  
IN-THE-EAR ( ) BICROS ( ) ( )  
CROS ( ) ( )
  - b. EXTERNAL RECEIVER TO BE USED: HEARING AID MANUFACTURER'S CODE: \_\_\_\_\_
  - c. RECEIVER CORD TO BE USED: HEARING AID MANUFACTURER'S CODE: \_\_\_\_\_
  - d. TUBING TO BE USED: SIZE ID OD  
LENGTH\* \_\_\_\_\_ (FITTING NUBS MUST BE ATTACHED). (DO NOT  
INCLUDE BATTERIES).
4. FOR PURPOSES OF THIS PROGRAM, A COMPLETE HEARING AID MODEL SHALL CONSIST OF ONE TRANSMITTER: ONE RECEIVER, IF RECEIVER IS NOT BUILT INTO THE INSTRUMENT; AND ONE CORD OR ONE SECTION OF TUBING OF APPROPRIATE LENGTH AND SIZE WITH ADAPTER NUB ATTACHED FOR FITTING TUBING TO CONVENTIONAL TYPE OF EAR-MOLD, WHICHEVER IS REQUIRED. EACH EXTERNAL RECEIVER MUST BE CLEARLY MARKED OR LABELED TO INDICATE THE HEARING AID MANUFACTURER'S IDENTIFICATION CODE.
5. FOR EYEGGLASS MODELS, TEMPLES AND/OR TEMPLE FITTING PIECES SHALL BE SUBMITTED IN MAXIMUM LENGTHS WITHOUT HINGES ATTACHED.
6. IF REGULAR EYEGGLASS SAMPLES ARE SUBMITTED, ONE INSTRUMENT OF EACH MODEL MUST BE COMPLETELY ASSEMBLED, INCLUDING AN EYEGGLASS FRONT, EXCLUSIVE OF OPHTHALMIC LENSES. ALL CROS, BICROS AND BONE CONDUCTION EYEGGLASS MODELS WILL BE COMPLETELY ASSEMBLED, INCLUDING AN EYEGGLASS FRONT, EXCLUSIVE OF OPHTHALMIC LENSES.
7. MANUFACTURER OF BASIC INSTRUMENT:  
NAME: \_\_\_\_\_  
STREET: \_\_\_\_\_ CITY: \_\_\_\_\_ STATE: \_\_\_\_\_  
COUNTRY: \_\_\_\_\_
8. NAME OF MANUFACTURER OR AGENT SUBMITTING SAMPLE: \_\_\_\_\_
9. SIGNATURE OF RESPONSIBLE OFFICIAL: \_\_\_\_\_

EXHIBIT "F" (CONT'D)

10. TITLE: \_\_\_\_\_ DATE: \_\_\_\_\_
11. NAME & ADDRESS OF FACTORY OR OFFICE FROM WHICH SAMPLES ARE TO BE OBTAINED:  
\_\_\_\_\_
12. CERTIFICATION: THE THREE SAMPLES OF THE ABOVE-NAMED MODEL BEARING SERIAL  
NUMBERS (1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_ HAVE BEEN SET AND AD-  
JUSTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION SHOWN ON EXHIBIT "D".  
NO ELECTRONIC OR MECHANICAL REPAIRS, TESTS, OR COMPONENT EXCHANGES HAVE  
BEEN MADE.

\*See footnote on Exhibit "D". SIGNATURE: \_\_\_\_\_ TITLE: \_\_\_\_\_  
\_\_\_\_\_

## EXHIBIT "C"

### HEARING AID MEASUREMENTS TO BE MADE BY THE NATIONAL BUREAU OF STANDARDS FOR THE VETERANS ADMINISTRATION

#### Definition of Random-Noise Signal

The random noise signal used in this procedure is one which has an essentially constant energy per unit bandwidth from 200 Hz to 900 Hz. The higher frequency part of the signal is rolled off with a single RC time constant of 177 microseconds, which places the 3 db down point at 900 Hz. Below 200 Hz the signal level is rolled off at a rate of 12 db/oct. From 200 Hz to 5000 Hz, the acoustical pressure developed is held to this defined curve within  $\pm 2 \frac{1}{2}$  db.

#### 1. Saturation Sound Pressure Level

With the volume control turned full on, the random noise signal is applied and the input level is increased until no further increase in the output of the hearing aid is noted. The input and output levels are noted.

#### 2. Gain

With the random-noise input signal at a level of 60 db, the volume control setting of the hearing aid is reduced until its output is 12 db below saturation. If the hearing aid does not have sufficient gain to reach this level with a 60 db input, the maximum gain setting is used. The gain for a pure-tone of 1 kHz at an input level of 60 db is noted.

#### 3. Response versus Frequency

With the volume control set as in section 2 above, and a sound input level of 60 db plus or minus 1.5 db, an automatic recording will be made of the gain versus frequency curve for pure tones from 200 to 500 Hz, in order to measure gain and frequency response. Recordings will be made over the range of 100 to 7000 Hz if the response of the aid extends beyond the narrower limits.

#### 4. Battery Drain

With the volume control set as in No. 2 above, the battery drain will be determined with (a) a random noise signal at a sound input level of 65 db and (b) no sound input.

#### 5. Harmonic Distortion with Volume Control Set as for Response Curve

The harmonic distortion will be measured with sinusoidal input signals and with the gain set as in No. 2 above. The input signal level will be the same as the input level of a random noise signal which causes the output to be 12 db below saturation. Normally, this will be an input level of 60 db. However, for those aids whose output is not as high as 12db below saturation with the maximum gain setting, the random noise input level will be increased



## EXHIBIT "G". (CONT'D)

until this output level is reached. The sinusoidal input is then set to that input level. Harmonic distortion measurements will be made at frequencies of 500, 700, and 900 Hz, and at that frequency above 500 Hz where maximum distortion occurs.

Next, the harmonic distortion will be measured with an input 10 db higher than the level used above. Normally, this will be with an input level of 70 db, except as noted above. Frequencies will be as above, with the frequency of maximum distortion determined separately for each level.

### 6. Signal-to-Noise Ratio

With the volume control as in No. 2 above and an input level of 65 db, the sound pressure output of the hearing aid for a 1000 Hz signal will be noted. Next, in the absence of a signal, the output sound pressure level due to electrical self-noise will be noted. The signal-to-noise ratio will be calculated.

### 7. Signal-to-Hum Ratio

With the volume control as in No. 2 above, the RMS output sound pressure level due to magnetic field pick-up in the most sensitive direction will be noted at various levels of magnetic field strength. The magnetic field will be composed of a mixture of 60, 180, and 300 Hz in the relative proportions of 100, 25 and 10, respectively. The sound output and field strength will be noted for which it is determined that the hearing aid is operating in a linear region. This sound pressure output will be extrapolated back to a field of the composition noted above, in which the strength of the 60 Hz components would be 1 milligauss. A signal-to-hum ratio will be calculated, using the signal of No. 6, above. This test will only be performed on instruments which have significant hum pick-up as determined by preliminary screening.

# EXHIBIT "H"

## BASIC COMPONENTS OF VARIOUS TYPES OF HEARING AIDS

### CONVENTIONAL OR ON THE BODY AID

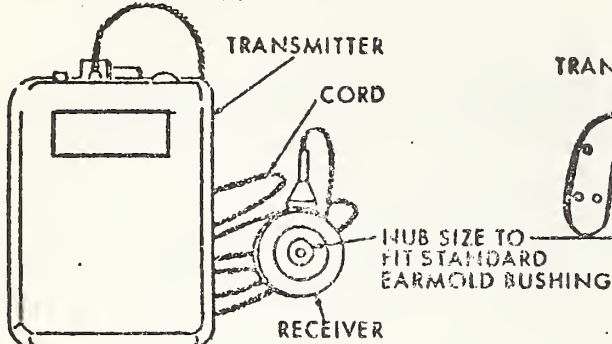
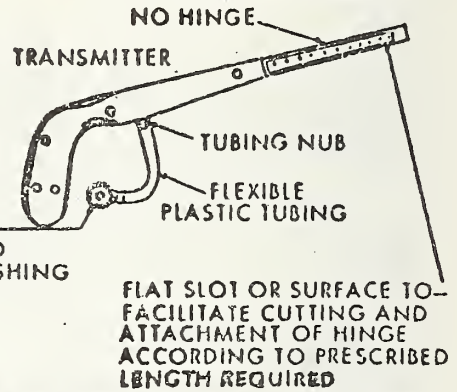


FIG 1

### FIG 2 EYEGLASS TYPE AID TYPICAL TEMPLE EXTENSION



### OVER THE EAR AIDS

#### FLEXIBLE PLASTIC TUBING OR CORD WITH EXTERNAL RECEIVER

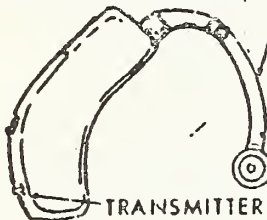


FIG 3

#### HARD PLASTIC CONNECTOR (ONE OF SEVERAL DESIGNS LONG OR SHORT)

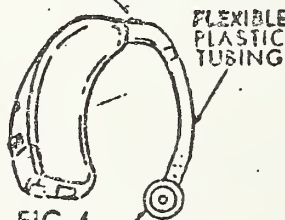


FIG 4

NUB SIZE TO FIT STANDARD EARMOLD BUSHING

### ALL IN THE EAR AID

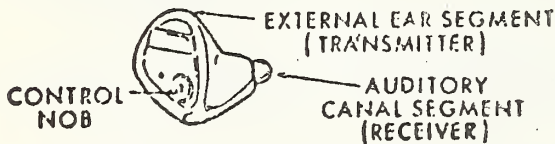


FIG 5

### TUBING LENGTH AND SOUND CHANNEL DIMENSIONS

FIG 6

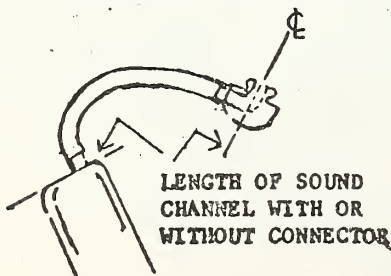
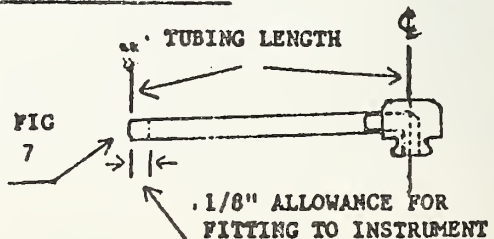


FIG 7



## EXHIBIT "I"

### Outline of Procedure for Statistical Analysis of Data

The performance of each of the three instruments representing a model will be considered separately in the analysis of data. The distribution of raw scores for each of the subtests is converted to a common scale with a specified mean and standard deviation. A conversion is necessary since the scores from the various subtests represent different measurement scales, ranges, and distributions. The converted scores can then be treated by routine arithmetic manipulation. The conversion from raw score to derived score is accomplished by using the following formula (Guilford, 1965):

$$X1 = (SD1/SD2) (X2) - (SD1/SD2) (M2) - M1$$

Where X1 = unknown score on the standard scale corresponding to X2

X2 = a raw score

M1 = mean of X1 (always 20.0)

M2 = mean of X2

SD1 = standard deviation of the standard score (always 10.0)

SD2 = standard deviation of raw scores

Each scaled score is then weighted by multiplying it by a factor which represents the value of the that subtest to the total measurement program. In order that subtests to be viewed in such manner that the higher the score the better the performance, it is necessary to reverse standardized scores for some subtests. The scores which are reversed are those for uniformity of slope, product uniformity, and all distortion scores. Reversal is effected by subtracting the standard score from 40. In these instances, weighting is accomplished after the distribution of raw scores has been standardized and reversed. The raw test data obtained by the National Bureau of Standards will be analyzed using the weights appearing below:

<u>Harmonic Distortion</u>	<u>60-db Input</u>	<u>70 db Input</u>
500 Hz	0.15	0.15
700 Hz	0.15	0.15
900 Hz	0.15	0.15
Frequency of Maximum distortion	0.15	0.15
Signal-to-noise Ratio	0.3	
Index of Effectiveness	1.9	
Uniformity of Slope	1.0	
Product Uniformity	0.6	



## EXHIBIT "1" (Cont'd)

With the exception of Index of Effectiveness, Uniformity of Slope and Product Uniformity, a description of the subtests may be found in the American Standard Methods for Measurement of Electroacoustic Characteristics of Hearing Aids (ANSI S 3.3-1960, Lybarger, 1961 b and c) or the Hearing Aid Industry Conference (HAIC) procedures (Lybarger, 1961a). The Index of Effectiveness is based upon the instrument's gain, its frequency response, the severity of the hearing impairment it should counteract, and selected dynamic characteristics of speech. The concept of the index of Effectiveness was developed by Carhart and will be the subject of a published paper. Copies of a paper explaining the principles of Index of Effectiveness are available from the Chief, Central Audiology and Speech Pathology Program, VA Hospital, Washington, D. C.

The Uniformity of Slope subtest was devised to determine how well the hearing aids meet the requested gain-frequency curve of 6 db per octave rise. The key points at which measurements are made are the 20 midpoints of bands research has shown to be equal in contribution to full intelligibility of speech (Kryter, 1950, 1962). Using a 6 db per octave floating base line, gain values for the 20 band midpoints are ranked from highest to lowest, and the median of the ranking obtained. A line 5 db down from the median value is drawn utilizing a slope of 6 db per octave. Only those key points above this line are employed in the computation. The differences between any key points occurring above this line and the median values are summed without regard to sign. The mean of the differences constitutes the instrument's raw score. This computation is made for every instrument in each power category. The raw scores are then converted to a derived scale, reversed and weighted.

The Product Uniformity subtest was designed to provide a measure of the performance similarity among the three samples of each model. Average gain and average saturation SPL are included in the subtest by converting these values to derived scales and giving each a weight of 0.6. The range between the highest weighted score and lowest weighted score for each subtest, including gain and SSPL is summed and becomes the Product Uniformity raw score value for each model. The distribution of raw scores is then converted to the derived scale, reversed, and weighted. For this subtest there is only one score for each model. The Index of Characteristics for each model is the sum of the mean weighted scores from the following subtests: Harmonic distortion, Signal-to-Noise Ratio, Index of Effectiveness, Uniformity of Slope, and the weighted score for Product Uniformity. Hearing aids will be rank ordered by the Index of Characteristics. The scoring system has been so designed that the mean of the distribution for each power category is 100.

Hearing aid models having Indices of Characteristics above 100 are considered acceptable to the Veterans Administration. It is recognized that certain types of hearing aids, such as in-the-ear models or models with restricted frequency range, will not score well on these tests in comparison with other instruments. Therefore, in order to accomplish a more realistic appraisal of their relative performance, modification of the procedures described above may be necessary. The results of the VA Hearing Aid Test Program must be viewed in relation to the needs of the hearing-impaired population to be served and the specific methods of measurement. Any questions should be referred to Dr. G. Donald Causey, Chief, Auditory Research Laboratory, VA Hospital, 50 Irving Street, N.W., Washington, D. C. 20422.

EXHIBIT "I" (Cont'd)

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EXHIBIT "I" (CONT'D)

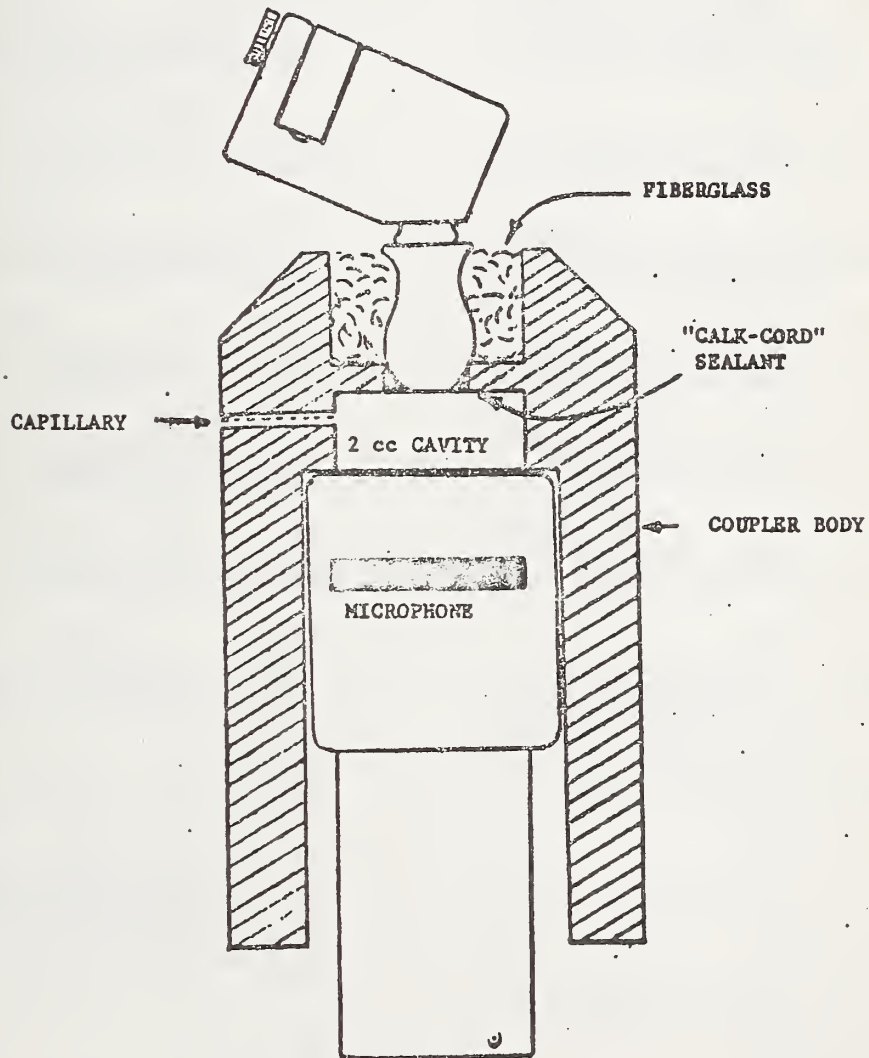
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EXHIBIT "J"

MOUNTING METHOD FOR TESTING IN-THE-EAR HEARING AIDS.  
(THIS IS NOT A SCALE DRAWING.)



# EXHIBIT "K"

## VA AUDIOLOGY AND SPEECH PATHOLOGY CLINICS

VA Hospital  
2100 Ridgcrest, S. E.  
Albuquerque, New Mexico 87108

VA Hospital  
2215 Fuller Road  
Ann Arbor, Michigan 48105

VA Hospital  
1670 Clairmont Road, N.E.  
Atlanta, Georgia 30329

VA Center  
Bay Pines, Florida 33504  
(St. Petersburg Outpatient Clinic)

VA Outpatient Clinic  
17 Court Street  
Boston, Massachusetts 02108

VA West Side Hospital  
820 South Damen Avenue  
Chicago, Illinois 60680

VA Hospital  
10701 East Blvd.  
Cleveland, Ohio 44106

VA Hospital  
4500 S. Lancaster Road  
Dallas, Texas 75216

VA Hospital  
1055 Clermont Street  
Denver, Colorado 80220

VA Hospital  
Fulton & Erwin Road  
Durham, North Carolina 27705

VA Hospital  
East Orange, New Jersey 07019  
(Newark Outpatient Clinic)

VA Hospital  
Columbia, South Carolina 29201

VA Hospital  
2002 Holcombe Blvd.  
Houston, Texas 77031

VA Hospital  
1481 West Tenth Street  
Indianapolis, Indiana 46202

VA Hospital  
Highway 6  
Iowa City, Iowa 52240

VA Hospital  
1500 Woodrow Wilson Drive  
Jackson, Mississippi 39216

VA Hospital  
4801 Linwood Blvd.  
Kansas City, Missouri 64128

VA Hospital  
300 E. Roosevelt Road  
Little Rock, Arkansas 72206

VA Outpatient Clinic  
425 S. Hill Street  
Los Angeles, California 90013

VA Outpatient Clinic  
1405 West Broadway  
Louisville, Kentucky 40201

VA Hospital  
1201 Northwest 16th Street  
Miami, Florida 33125

VA Outpatient Clinic  
Ft. Snelling  
Minneapolis, Minnesota 55417

VA Center Mountain Home  
Johnson City, Tennessee 37684

VA Hospital  
1601 Perdido Street  
New Orleans, Louisiana 70140

EXHIBIT "K" (CONT'D)

VA Hospital  
First Avenue at East 24th Street  
New York, New York 10010

VA Hospital  
921 Northeast 13th Street  
Oklahoma City, Oklahoma 73104

VA Outpatient Clinic  
1421 Cherry Street  
Philadelphia, Pennsylvania 19102

VA Hospital  
University Drive C  
Pittsburgh, Pennsylvania 15240

VA Hospital  
San Jackson Park  
Portland, Oregon 97204

VA Hospital  
1201 Broad Rock Road  
Richmond, Virginia 23219

VA Hospital  
4150 Clement Street  
San Francisco, California 94121

CONTRACT CLINICS

University of Montana  
Missoula, Montana 59801

SPECIAL

VA Regional Office  
Manila, Philippines  
APO, San Francisco 96528

VA Center  
GPO Box 4867  
San Juan, Puerto Rico 00936

VA Outpatient Service  
Smith Tower  
2nd Avenue and Yesler Way  
Seattle, Washington 98104

VA Hospital  
510 East Stoner Avenue  
Shreveport, Louisiana 71101

VA Hospital  
Irving Avenue & University Place  
Syracuse, New York 13210

VA Hospital  
13000 North 30th Street  
Tampa, Florida 33612

VA Hospital  
Tucson, Arizona 85723

VA Hospital  
50 Irving Street, N.W.  
Washington, D. C. 20422

University of Utah  
Cooperative Research  
207 Park Building  
Salt Lake City, Utah 84112



EXHIBIT "L"

LIST OF TYPES AND SIZES FOR FRONT WIRED EYEGGLASS HEARING AIDS REQUIRED  
BY THE VETERANS ADMINISTRATION

STYLE - NAME OR NUMBER - MALE \_\_\_\_\_

FRAME FRONT SIZES

<u>EYE</u>	<u>BRIDGE</u>			
44	20	22	24	26
46	20	22	24	26
48	20	22	24	26
50	20	22	24	26

BRIDGE SHALL BE KEYHOLE OR SADDLE SHAPE.

COLORS SHALL BE "BLACK" OR "BLACK ON CRYSTAL" ONLY.

ORDERS ISSUED BY THE VA FOR SIZES OTHER THAN THOSE LISTED ABOVE WILL BE  
CONSIDERED "SPECIAL". "SPECIALS" WILL BE GIVEN SERVICE IN KEEPING WITH  
STANDARD PRACTICE WITHIN THE INDUSTRY.

EXHIBIT "M"

PROPOSED FORMAT TO BE USED BY VA WHEN ENTERING MEASUREMENTS ON VA FORM 10-2529 FOR PROCUREMENT OF PROPER OPHTHALMIC COMPONENTS FOR EYEGLOSS HEARING AIDS HAVING HEARING AID COMPONENTS IN THE EYEGLOSS FRONTS

In accordance with the provisions of VA Contract \_\_\_\_\_, please provide for the accompanying (Bone Conduction) (CROS) type hearing aid, SII \_\_\_\_\_, ophthalmic components which conform to the following requirements:

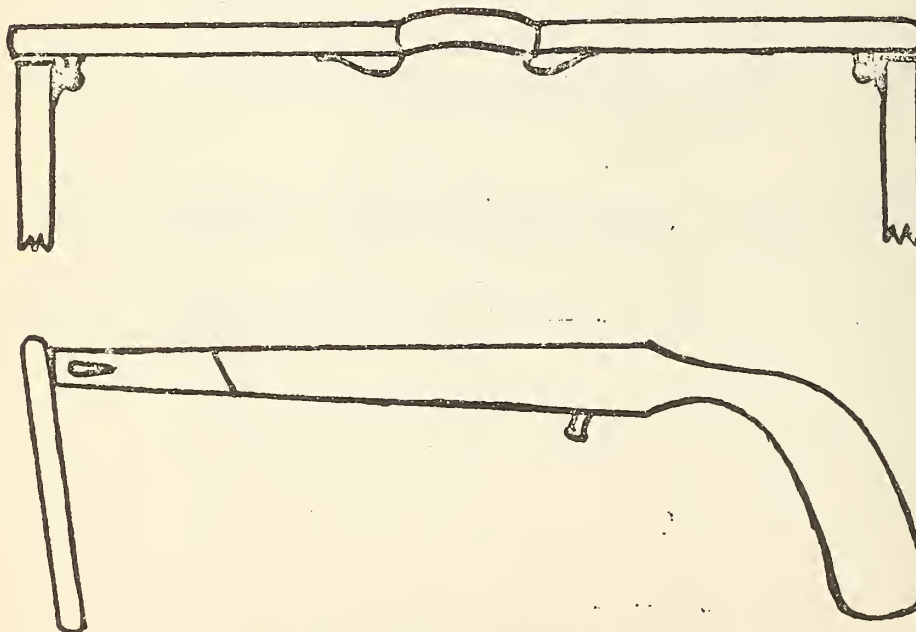
1. Part Number: \_\_\_\_\_
2. Type (Male or Female) \_\_\_\_\_
3. Style Name \_\_\_\_\_
4. Color (Black or Black on Crystal) \_\_\_\_\_
5. Bridge Type \_\_\_\_\_
6. Lens Size \_\_\_\_\_
7. Bridge Size \_\_\_\_\_
8. Temple Length - Hinge to Top of Ear - Right \_\_\_\_\_
9. Temple Length - Hinge to Top of Ear - Left \_\_\_\_\_
10. Temple Extension Length - Right \_\_\_\_\_  
    Temple Extension Length - Left \_\_\_\_\_  
    (As Determined by Fitting Kit,  
    if Available) \_\_\_\_\_

It is understood that components conforming to these measurements (are) (are not) available from the contractor's stock.

## EXHIBIT "H"

THIS FORM MUST BE COMPLETED FOR EACH EYEGLASS HEARING AID MODEL SUBMITTED. Using the schematics below, the manufacturer will indicate by appropriate markings, the particular areas to which heat and/or pressure may be applied to shape and adjust frames to fit wearer. Specific instructions will be given regarding the following:

1. Recommended methods for bending temples at hinges and other areas:
2. Where and what type of heat (moist, dry, direct, etc.) or pressure may be applied:
3. Specific instructions for lens insertion and removal:
4. Potential for reduction or enlargement of bridge size:



(This Exhibit May be Reproduced as Needed)



#### SUGGESTIONS FOR COMPLETING PRICING SCHEDULES:-

Schedules are for use in pricing models you wish to submit for consideration for the different types and should be returned with your bid forms.

On first line, insert make and model number.

For on-the-body or eyeglass types, if submitting same model in bone conduction, use another set of forms and change air to bone.

On second set also change item number to next unused number (such as 1 to 6).

Cross out features not applicable to the particular model, such as deletion of headband if other than bone conduction.

If telephone pick-up feature is not available, cross out this reference.

If submitting more than one model of same type, change item number on additional sets of forms to next unused number. (For example - 1 thru 1E may become 6 thru 6E for second model, etc.)

If instrument takes two batteries to operate it, change number of batteries to 6 for schedule A.

For on-the-body aids, if garment carrier is not commercially available from your firm, delete item.

For IE or EG types, indicate if instruments come for fitting left or right, or interchangeable.

Pricing schedules should be completed and returned in 3 copies. Additional copies are available from issuing office upon request, or photo copies may be used.

SCHEDULES "A" AND "B"

1. PRICES: Prices quoted will be for Schedules "A" and "B" and the figures inserted in the appropriate columns.

a. For purposes of Schedule "A", prices will be quoted on a complete hearing aid including 3 batteries, and the individual components.

b. For purposes of Schedule "B", prices will be quoted on a complete aid. Batteries are not included.

c. Other components and accessories offered for use with the model shown below may be listed and prices quoted under Schedule A.

d. EYEGLASS TYPE HEARING AIDS WILL BE ACCEPTED IN "BLACK" ONLY.

DESCRIPTION	*LIST PRICE	UNIT	PRICE	PRICE
			SCHEDULE "A"	SCHEDULE "B"
1. _____, OB, Air, Complete unit consisting of: transmitter with telephone pickup internal or external receiver # _____ _____, 3 each 30 inch cords # _____, 3 each batteries type _____, presentation case, garment carrier(if available).		Each		
SPECIFY: Color of transmitter _____				
1A.. Transmitter only: # _____		each		
1B. Receiver only: # _____		each		
1C. Cords only (set of 3) # _____		set		
1D. Garment carrier only(If available).		each		
1E. Headband only: # _____ (If bone)		each		

\* PRICE CHARGED GENERAL PUBLIC

SCHEDULES "A" AND "B"

1. PRICES: Prices quoted will be for Schedules "A" and "B" and the figures inserted in the appropriate columns.

- a. For purposes of Schedule "A", prices will be quoted on a complete hearing aid including 3 batteries, and the individual components.
- b. For purposes of Schedule "B", prices will be quoted on a complete aid. Batteries are not included.
- c. Other components and accessories offered for use with the model shown below may be listed and prices quoted under Schedule A.
- d. EYEGLASS TYPE HEARING AIDS WILL BE ACCEPTED IN "BLACK" ONLY.

DESCRIPTION	*LIST PRICE	UNIT	PRICE SCHEDULE "A"	PRICE SCHEDULE "B"
2. _____, OE, Air, complete unit consisting of: transmitter, with telephone pickup, receiver, 3 sections tubing size _____, inches long with adaptor nub attached for fitting to conventional type ear mold. 3 each batteries type _____, presentation case.		Each		
SPECIFY: Color of transmitter _____				
2A. Transmitter only: # _____		Each		
2B. Tubing only: (3 sections) # _____, _____ inches long with nub adaptor.		Set		

CONTRACTOR AGREES TO EXCHANGE WITHOUT CHARGE TO THE VA, LIGHT  
COLORED FAR-LEVEL HEARING AIDS FOR DARK BROWN MODELS AS  
MAY BE REQUIRED FOR ISSUE TO CERTAIN VETERANS.

\* PRICE CHARGED GENERAL PUBLIC



# SCHEDULES "A" AND "B"

1. PRICES: Prices quoted will be for Schedules "A" and "B" and the figures inserted in the appropriate columns.

a. For purposes of Schedule "A", prices will be quoted on a complete hearing aid including 3 batteries, and the individual components.

b. For purposes of Schedule "B", prices will be quoted on a complete aid. Batteries are not included.

c. Other components and accessories offered for use with the model shown below may be listed and prices quoted under Schedule A.

d. EYEGLASS TYPE HEARING AIDS WILL BE ACCEPTED IN "BLACK" ONLY.

DESCRIPTION	*LIST PRICE	UNIT	PRICE	PRICE
			SCHEDULE "A"	SCHEDULE "B"
3. _____, IE, AIR,		each		
Complete unit consisting of:				
Transmitter and internal receiver,				
set of 3 each ear tips # _____,				
3 each batteries type _____,				
presentation case.				
SPECIFY: Color of transmitter				
_____				
3A. Transmitter only: # _____		each		
3B. Ear tips only (set of 3): # _____		set		

Contractor agrees to exchange without charge to the VA, light colored ear-level hearing aids for dark brown models as may be required for issue to certain veterans.

\* Price charged general public

# SCHEDULES "A" AND "B"

1. PRICES: Prices quoted will be for Schedules "A" and "B" and the figures inserted in the appropriate columns.

a. For purposes of Schedule "A", prices will be quoted on a complete hearing aid including 3 batteries, and the individual components.

b. For purposes of Schedule "B", prices will be quoted on a complete aid. Batteries are not included.

c. Other components and accessories offered for use with the model shown below may be listed and prices quoted under Schedule A.

d. EYEGLOSS TYPE HEARING AIDS WILL BE ACCEPTED IN "BLACK" ONLY.

DESCRIPTION	*LIST	UNIT	PRICE	PRICE
	PRICE		SCHEDULE "A"	SCHEDULE "B"
4. _____, EG, Air, Complete unit consisting of: An active temple containing trans- mitter with telephone pick-up and internal receiver, matching dummy temple, both temples of maximum length without hinges attached, one set of temple hinges and screws included separately, 3 sections tubing #_____, _____ inches long with adaptor nub attached for fitting to conventional type ear mold, 3 each batteries type _____, and carrying case.		each		
4A. Transmitter only: #_____		each		
4B. Tubing only: (3 sections) size #_____, _____ inches long with nub adaptor.		set		

\* Price charged general public

# SCHEDULES "A" AND "B"

1. PRICES: Prices quoted will be for Schedules "A" and "B" and the figures inserted in the appropriate columns.

a. For purposes of Schedule "A", prices will be quoted on a complete hearing aid including 3 batteries, and the individual components.

b. For purposes of Schedule "B", prices will be quoted on a complete aid. Batteries are not included.

c. Other components and accessories offered for use with the model shown below may be listed and prices quoted under Schedule A.

d. EYEGASS TYPE HEARING AIDS WILL BE ACCEPTED IN "BLACK" ONLY.

DESCRIPTION	*LIST PRICE	UNIT	PRICE	PRICE
			SCHEDULE "A"	SCHEDULE "B"
5. _____, EG, Air, each Complete unit consisting of: One temple containing transmitter right # _____ or left # _____, receiver temple right # _____ or left # _____, templette assembly cut and hinged pair # _____, wire through front frame # _____, internal receiver, 3 sections _____ tubing _____ inches long with flexible coupler # _____, 3 each batteries type _____, and carrying case.				
5A. Transmitter only: Right # _____		each		
5B. Transmitter only: Left # _____		each		
5C. Receiver temple: Right # _____		each		
5D. Receiver temple: Left: # _____		each		
5E. Front frame with concealed wiring and contacts.		each		
5F. Tubing (3 sections) _____ inches long with flexible coupler.		set		

Exchange privileges are extended for temples and templettes and frame fronts, without charge for standard sizes, and with additional charge of \_\_\_\_\_ for other than standard sizes.

\* Price charged general public.





















